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EDITORIAL

WE publish in this number two articles on Psychical Research to which we hope that such of our readers as are interested in this subject will pay particular attention.

The description by Mr. Harry Price of the very remarkable phenomena which he recently witnessed at Munich is especially to be commended to the notice of those who are rightly sceptical about the accounts of mediumistic phenomena which they ordinarily encounter. It has often been pointed out that eminence in what we may term the orthodox scientific fields is no guarantee of ability to distinguish genuine phenomena from spurious and even an extensive experience of the ordinary type of "conjuring" is likely to be insufficient unless it happens to include a knowledge of the special artifices employed in mediumistic deceptions. Any bias in either direction is also a serious handicap since it is liable to lead as easily to the rejection of the genuine as to the acceptance of the fraudulent.

Mr. Price, and his colleague Mr. Dingwall who accompanied him to Munich, possess a knowledge of fraudulent methods which is probably unrivalled, in addition to a very extensive experience of mediumistic phenomena of all kinds. Moreover, no one who knows how strongly both have been attacked for their criticisms of Spirit Photography will be likely to suspect them of any undue bias in favour of the authenticity of the "physical" phenomena of mediumship which they may encounter.

It is therefore to be hoped that this account may receive serious attention from those who are inclined to deny the occurrence of phenomena of this kind. Problems so obscure as these cannot even be profitably discussed until the facts are established, and the amount of first-class evidence available is still far too small.

Dr. Franklin Prince also contributes to this number an article which should go far to enlighten the psychological public as to the peculiar obstacles with which the student of psychical research is faced. To the very great intrinsic difficulties of the subject are gratuitously added those associated with the extraordinary type of mental ineptitude which so often characterises the attempts of otherwise distinguished men to deal with it. Of this ineptitude Dr. Prince gives a number of striking examples, and these should serve a most useful purpose not only as a warning to those who contemplate expressing opinions on the subject, but also to the general reader who is liable to be led astray by distorted and inaccurate publications.

THE DIFFICULT AND DELINQUENT CHILD.[1]

By R. G. Gordon, M.D., B.Sc., M.R.C.P.Ed., Visiting Neurologist, Ministry of Pensions Hospital, Bath; Physician Royal Mineral Water Hospital, Bath.

IN discussing the help which Doctors and Psychologists may give to Educationalists, it seems important to draw special attention to a question which is always a difficult one for parents and teachers, and that is what we are to do with the difficult and delinquent child. In conversations with many school teachers, one has often been asked what can be done with the child who will not fit in, who in spite of punishments persists in misbehaviour, and who becomes a perfect nuisance to the authorities and the other children. Before answering such a question we must know why such a child is difficult, and it is in this connection that we require a great deal more knowledge than we have at present, and where co-operation between workers in the fields of education and psychology is so necessary. Moreover, it is of the utmost importance that the question should be looked at as broadly as possible, and be dealt with by people whose knowledge is sufficiently extensive to avoid the restriction of the range of enquiry within the limits of one creed or dogma. There is too great a tendency at present to regard theories which can be no more than policies as hard and fast creeds, which must be believed in their entirety or not at all, and this is specially true in the case of enthusiasts who have not had a thorough grounding in the sciences on which investigations, such as I have mentioned, depend; such people are much more likely to be dangerous than useful.

During the last few years a great deal has been written and a great interest has sprung up on the subject of psychoanalysis and education. Psychoanalysis has become a very restricted and special field in psychological investigation, and to judge by their effusions many people calling themselves psychoanalysts, have not the slightest knowledge of physiology, biology or even psychology, without which so-called psychoanalysis is not only meaningless

[1] A paper read at the joint meeting of the Sections of Education and Psychology of the British Association.

rubbish but pernicious rubbish. That is not to say that I am an opponent of psychoanalysis, indeed I believe that if it is restrained and restricted by a proper regard for the known facts of the above sciences, it is a most valuable means of investigation, but I protest most strongly against the unqualified dabbler who is led away into pseudo-metaphysical speculations, which are not even logical.

Returning to our subject, we must recognise that it is one bristling with difficulties and complexities. For example—a child was adopted by a lady, who herself was childless, and whose maternal impulses were strong. The child was the illegitimate offspring of a woman who was entirely frivolous and devoted her life to pleasure. The adopted mother was on the other hand averse to display, and the child was brought up in an environment which was plain almost to severity. The child was forbidden to do her hair or to dress in anything but the most simple way. She was allowed no jewelry or ornamentation of any sort. While under home supervision things went fairly quietly. She was then sent to a Boarding School. Freed to a certain extent from restraint, the child wasted much of her time in titivating herself, fuzzing out her hair and so on, she spent all her pocket money in buying cheap but gaudy brooches, bangles, etc., which she was not allowed to wear in school, but with which she used to decorate herself in secret. Presently small sums of money began to be missing, and eventually it was discovered that the child stole from other children and from mistresses, but that everything went in the purchase of material for self adornment. In such a case, how much was due to inheritance of her mother's character, how much to early repressions and the reactions from them, how much to a combination of both? We really do not know enough to say. We want to know to what extent the misdemeanour of this child, and others like her, could have been prevented by different treatment at home. To what extent mental exploration, in the form of psychoanalysis in the strict sense of the word, or some similar method could have kept her from tendencies which were bordering on the criminal. We also want to have more definite knowledge as to what happens to such children in after life if nothing is done for them, and after they have been expelled or sent away from school as almost invariably happens in present circumstances. Such cases are met with in all classes of life, and in America some work is already being done, and valuable information is being obtained. In this country this work is being taken up by Educational Psychologists such as Dr. Burt, and by Drs. Crighton Miller and Hamilton Pearson at the Tavistock

Clinic. Work done in the juvenile courts especially in America, but also in this country particularly by Dr. Potts in Birmingham, is throwing considerable light on the more severe cases, but little or no information is available with regard to children of the richer classes, and it is essential that this information should be forthcoming because in cases in which the same sorts of misdemeanour occur, we want to compare early environment, and this can only be done if we can get material to work upon from all strata of society.

However, from such material as we have got we can say something with regard to the causes of delinquency and as to the form that delinquency will take. The types of child who are most likely to give trouble are what has been called the psychopathic child and the retarded child, who is not sufficiently feeble minded to come within the scope of the Mental Deficiency Act or indeed to be recognised as feeble minded at all.

With regard to the psychopathic child our knowledge is still lamentably defective. The ordinary individual is born with a mental equipment which we call his predisposition, and which should consist of a reasonably balanced collection of dispositions, such as has been described by Shand[1] and McDougall.[2] Unmodified or uncontrolled these dispositions are evil and will of necessity lead to vicious conduct, a striking confirmation of the old theological doctrine of original sin, but if properly correlated and modified by each other and by education, they are all capable of leading to the highest virtues. Fear in its primitive form of panic is a vice, but modified and integrated as an essential part of prudence it is a virtue, and other examples are obvious. But if this proper correlation is to be obtained, we must have a proper balance between these factors, and in the psychopathic child one or more gain an ascendency over the rest of the personality and so give rise to uncontrolled impulses which characterise the behaviour of what is termed the moral defective. It is obvious how important it is to recognise such traits early and do everything possible by modifying the environment and building up opposing tendencies to bring such impulses under the general control of the individual. Varying degrees of such lack of balance between the different impulses and the environment occur, and sometimes the break in "moral behaviour" only occurs under the stress of puberty. As Potts[3] says, "the prognosis of cases displaying

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[1] Shand A. Foundations of Character. London.

[2] McDougall. Social Psychology. London 1917.

[3] Shuttleworth and Potts. Mentally Deficient Children. 5th Edit., London, 1922.

moral delinquency for the first time at puberty is not necessarily unfavourable, and if such a case is withdrawn from its old surroundings and placed under the judicious care of a tactful tutor, a gradual rehabilitation of moral balance may be looked for as the initial stress of puberty subsides." In many cases the trouble lies in the failure of the establishment of proper relationships to the environment, a function essentially of the higher grades of consciousness. In such cases there is no distinction between phantasy and reality, and the child follows his phantasy and his day dreams to any length, as for example in the case of a child who wandered off from home to play with the fairies, and only returned to reality when he was brought to the police court, having been found wandering and apparently unable to give any account of his home or parentage, or to distinguish any essential difference between Oberon and the police sergeant. The most difficult cases of all are those in which there is both an overmastering uncontrolled impulse, such as the instinct of acquisitiveness and a complete failure to get into touch with reality. For instance, a child was an incorrigible thief, and in spite of repeated punishments stole in such a way that he was bound to be found out, taking obvious things which he could not dispose of from the schoolmaster's study. Potts[1] describes the essential features of such cases as follows. "The crime is out of all proportion to the temptation, the moral shortcomings are not to be explained by training and environment, and are not influenced by ordinary discipline and punishment. The delinquent often profits little, if at all, by his misdemeanour, and in cases of stealing frequently distributes among others or throws away what he has acquired. There is usually some other sign of defect, but this is not necessarily of an intellectual nature." One such defect one has observed is a lack of any affection for others and a lack of any power of inspiring affection which may be due to a deficiency of the gregarious instinct which is of such importance in socialisation. In such cases the value of exploration of the child's mind to find out exactly what is at fault is obvious, and so far it must be confessed we are only in the experimental stage, and the therapeutic value of our methods can be little more than a pious hope. One cannot agree with some authorities who suggest that a so-called moral centre is lacking in these cases; it is not the absence of any one element in the mental make-up that is at fault, but the proper integration of the various impulses to subserve a common end that is wanting. The possibility of improv-

[1]Shuttleworth and Potts. Mentally Deficient Children. 5th Edit., London, 1922.

ing the integration of factors already present is a much more hopeful outlook than the supplying an absent *structure de novo*. However, without investigation progress is impossible, and there is considerable evidence to show that in the future therapeutic benefit will be obtained by these methods.

The retarded child is a slightly different problem. In such cases, if the boy or girl is sent to an ordinary school where he has to mix continually with other children more intelligent and quicker than himself, a continual stream of impressions of his own inferiority pour upon him unmercifully. If in his predisposition self-assertion is not a marked feature, he will become disheartened, sullen, and probably more stupid than he need be, but his backwardness will be fairly readily recognised and possibly suitable provision made for him. If on the other hand his self-assertion is a large factor, he will not submit to the idea of inferiority, but will re-act to it strongly and exhibit what has been called the will to power. By this we mean the constant effort to prove to himself and incidentally to others that he is not inferior. This will lead to a certain aggressiveness and a search for means whereby he can display himself to advantage in the presence of his fellows. Under such circumstances he will be rude, disobedient and stubborn, and will seek by all means in his power to cover his deficiencies and avoid punishment, whereby he feels himself further humiliated. As a result he will have no regard for the truth and become a pathological liar. He may seek to express himself by all sorts of phantastic adventures in which he seeks to play a prominent part. This may lead to truancy and wanderings far from home. He may seek means to further his object by stealing money to buy things which he thinks will glorify himself. But what perhaps is the most insidious trouble in schools is his desire to establish an ascendency over other children by any means. He fails to do this in class or in games, but he may be able to collect a certain amount of undesirable knowledge, sexual and otherwise, which needs no intellectual ascendency to acquire, and which he can hand on to other children smaller than himself. The impartation of such knowledge can always find respectful and attentive audiences, and the situation is just what the backward child desires. In many such cases it is only necessary to remove such children from the unfair competition involved in school and start them in training suited to their intellectual capacities, encouraging them in what they can do and so restore their self-respect. Very often not only will this do away with all vicious tendencies but will increase their achievement to a remarkable degree, so that they grow up not

incapable of taking a certain place in the world. They will never be brilliant, but may be no worse than several people of our acquaintance who are to be found even in the highest places.

If these children are neglected and nothing is done for them, their sense of inferiority and the reactionary will to power is bound to increase and find expression in some way. It is found by experience that this may take the form of neurotic illness whereby they gain the attention and care of other people, or they may turn to drink or drugs which lead them to a temporary Nirvana, or lastly, they may drift into a definitely criminal career. Cases of neuroses following such situations are common, for example, a small boy was brought up with a cousin away from his parents, dividing his time between his two grandmothers, who cordially detested each other and freely discussed each other to the child—as bad an early environment as could well be imagined. In course of time the cousin went to Rugby, but the child in question, being stupid, was sent to a school which he regarded as much inferior. After six weeks, spent mostly in tears and sulks, he hurt his head slightly in the baths and vomited; this was the trigger that fired off the neurosis, just as the bursting of a shell precipitated so-called shell-shock during the war. Our child learnt the trick of regurgitation of food, and did so after each meal. What is more, he beat us all, and he had to be taken away from his school, though he was not sent to Rugby. Again, a neuropathic boy who went to a big public school managed to avoid games and most of his work, but found his self-expression in stealing. He was expelled, and is now receiving the sympathy of his relations and friends in the full glory of a "nervous breakdown." It is obvious, then, that the investigation and treatment of such cases should be definitely undertaken both for the sake of the individual and for the sake of the State. Whenever a child is suspected of being abnormal there should be some means whereby definite investigation may be carried out, and this investigation ought to be carried out under three headings.

Firstly, physical examination. It is not necessary to quote medical details as how such things as infective conditions about the body, abnormality in secretions of the endocrine glands and factors such as eye strain, deafness, etc., may effect the mental development of the child. I once saw an amiable child of three who, whenever he got hold of the family kitten, put it on the fire, and the climax came when he was discovered trying to do the same with his baby brother. His elder brother was deficient but harmless, and all three children were clearly suffering from

congenital syphilis. The eldest was past help, and I was afraid the second was too old to benefit by treatment, but their family doctor was most painstaking and persistent in carrying on, and I am glad to say that up to date the second child, now 5½, has completely got over his criminal tenderness, and though he has a bad temper, it is not noticeably abnormal, while the baby is described by his parents as angelic.

Secondly, the intelligence of the child should be investigated, and although we have not yet reached perfection in intelligence tests, much can be learned through the use of such means as the Stanford revision of the Binet-Simon tests or the Yerkes-Bridges point scale test in the hands of an experienced observer. In this way the backward child can be readily recognised and provided for.

Thirdly, investigations of their reactions of life must be undertaken, and here mental exploration is necessary. Word association experiments give useful suggestions for lines of investigation, and so long as we are not led astray by too rigid methods, we cannot learn too much about the working of the child's mind. Probably this is not the time to suggest adventures on the part of the State to provide for such investigation, but in the blessed time which we all look forward to when the Geddes axe shall be laid aside as no longer necessary, something will have to be done. Meanwhile I would like to draw attention to the work being done in America, especially in the State of Ohio. Dr. Goddard,[1] in his admirable little book on juvenile delinquency, explains the work of the Ohio bureau of juvenile research. If this is at present beyond our means, a great deal of information can be got by private individuals, and other clinics on the lines of Tavistock Square should be started, which will greatly assist the work, when eventually it can be carried out on a more extensive scale, but I would repeat my assertion that if clinics are to be established and work is to be done along these lines, some sort of test as to the qualification and capabilities of the workers is absolutely necessary. The mind of the child is a delicately adjusted mechanism and cannot be too carefully handled. It must be remembered how suggestible a child is, and the greatest care must be taken that nothing shall be unplanted which shall still further weaken, control and upset the nice adjustment of impulses on which his moral sanity depends. The function of such clinics will at first be purely advisory, and here the importance of sound advice is obvious, but if we are to look forward to a time when the work becomes executive, then the proper selection of the workers is still more necessary.

[1] Goddard, H. H. Juvenile Delinquency. London, 1922.

THE ENCHANTED BOUNDARY.

By Walter Franklin Prince, Ph.D.

"And so they set forth toward the region which they had vowed to conquer, a band of gallant knights, all bedight in massy armour and bravely bearing lances and swords, all seated on steeds which were both swift and sure. But as soon as the first had crossed the border of that region his weapons became like rotten wood, the joints of his armour began to gape widely, and his proud steed altered to a sorry jade, which stumbled at every pebble in the way. And thus fared it with every knight as he crossed, for lo, it was an enchanted boundary."

THUS begins a tale which still continues. For the knightly band is made up of sundry learned and professional men, the region which they set forth to harry is that of Psychical Research, and verily, it seems to have an enchanted boundary, for it happens to them when they cross it even as has been said. In other fields they are prudently silent until they have acquired special knowledge, but they venture into this with none. Elsewhere they test their facts before they declare them, but here they pick up and employ random statements without discretion. Elsewhere they use a fair semblance of logic, but here their logic becomes wondrous weird. Elsewhere they generally succeed in preserving the standard scientific stolidity, but here they frequently manifest and confess a submission to emotions ill befitting those who sprang from the head of Brahm. Elsewhere they observe the knightly etiquette of the lists, but in this field think it no shame to decline the fair encounter, and, from the safe shelter of the barrier, to jeer about the presumptive quality of their opponents' brains.

I am not here defending anything within the debatable region, I am only pointing in wonder to the effects of the enchanted boundary upon those who cross it with deadly intent. The most of the devoted band (aside from the penny-a-liners of the periodical press) may be arranged in three classes:

(i) *Scientific and professional men* (not including psychoanalysts and clerics); (ii) *Psychoanalysts;* (iii) *Clerics.*

The first class of assailants are as a rule as hostile to the theory of telepathy as to that of spirit communication. With a full sense of responsibility, I assert in regard to these that:

1. None have squarely faced and fairly discussed the real evidence. They either avoid the great evidential cases altogether,

or they make a travesty of them, usually picking out incidents for dissection which no psychical researcher would think of putting forward as proof, and passing by or maltreating those which the psychical researcher does emphasize as significant of some species of supernormal acquisition of information.

2. Most of them are frequently guilty of absurd blunders in matters of fact which are comparatively easy of reference.

3. Some of them seem unable to quote correctly.

4. Many of them give evidence of lacking acquaintance with the literature of psychical research (other than by special cramming) by queer spelling of proper names familiar to students.

5. They fall into curious solecisms of logic such as would expose them to universal laughter in any other field.

6. Generally, they exhibit impatience, "loathing," and other emotional aberrations such as ill befit those who sit as voluntary judges.

7. Especially, they are inclined to the logical fallacy of entrenching themselves behind the barrier of supposed scientific maxims which beg the very questions of fact in dispute.

8. Particularly of late, they manifest a tendency to exchange argument for technical billingsgate, applying to their opponents expressions of which the shorter and plainer equivalents are "cranks" and "simpletons."

We might go back to an earlier day for illustrations, and begin with Faraday. Suppose that the American Geographical Society had reluctantly consented to examine Peary's claim that he had discovered the north pole on conditions parallel with those which Faraday demanded in advance from Home: (*Modern Spiritualism*, Podmore, II, 145), "Will Admiral Peary 'admit the utterly contemptible character' of his reputed discovery, in the way of supplying anything 'of the least value to mankind'?" Do such terms represent the spirit and the logic which science applies to the determination of facts? And yet, so deadly is the blinding power of prejudice, Tyndall not only justified Faraday's demand that a creed should be acknowledged as a condition prior to examining facts, but his own acts and remarks in connection with the only psychic experiment he ever witnessed were so at variance with the scientific procedure which characterized him in his own proper field that even so resolute a critic of the spiritistic hypothesis as Podmore is obliged to condemn them. (*Modern Spiritualism*, II, 147). And Huxley, in declining the opportunity for investigation offered him by the very respectable London Dialectical Society (*Report*, ed. of 1871, pp. 230-231), said, "The only good I can see in a demonstration of the truth

of 'Spiritualism' is to furnish an additional argument against suicide." Yet what contempt Huxley or Darwin would have felt for the man so under the spell of emotional repulsion against the mere thought that he could be biologically related to apes as to exclaim, "The only good I can see in the demonstration of such a claim is to furnish an additional argument for suicide, in order to get beyond the sight of such unpleasant relatives." If they had patience to answer such a piece of inconsequence at all, would they not have remarked, in substance, that facts are neither determined nor abolished by one's emotions in relation to them?

Amy E. Tanner, Ph.D., in 1910 published a book entitled *Studies in Spiritism*. Since she was for three years the "research coadjutor" of Professor G. Stanley Hall, President of Clark University, and was pronounced by him "an able and indefatigable worker" (P. XXIII) and author of an excellent work on child psychology, we would expect to see in these studies in a new field marks of the scholastic virtues ascribed to her. But alas! it happened to her exactly as in the parable with which this article begins. The result was one of the most awful travesties of analysis and criticism ever seen. Dr. Hyslop reprinted in the *Journal* of the A.S.P.R. (January, 1911) every word which Dr. Tanner wrote in reference to incidents of his sittings with Mrs. Piper, and confronted them with the facts in the record which she had consulted. The exhibit is almost terrifying. It appears beyond question that she persistently avoids the strongest incidents; that she persistently picks out a few details of the incident which she deigns to notice, in order to deride them, while silent upon important particulars and avoiding altogether collective significance, that in many cases she materially mis-states, or even reverses the facts; that she persistently distorts the relation of the facts; that she repeatedly misrepresents Dr. Hyslop's arguments and opinions; that she repeatedly declares that he regarded a particular incident as evidential when he, by express statement, did not; that she repeatedly declares that he regarded a statement by a "communicator" as correct, when he did not, but the contrary; and that she discounts the conditions of the sittings by sheer flights of imagination, without any basis for it in the record she is studying, or even in defiance of what it says. I give one incident as Dr. Tanner reports it, and it is a fair sample. The facts are placed in brackets.

> James McClellan said that his brother John would be there soon, the context indicating plainly that his brother would die soon and join him. It turned out, however, that John had already died, nearly a year before [*False; the record plainly stated that he died more than nine months afterward*] and of course the control proceeds to explain his ambiguous phrases, and Hyslop

accepts the explanation [*no such explanation was made and, consequently, none such was accepted*].

The same control said that the same John had had a sunstroke from which he never fully recovered [*False; he said that John's brother David had had the sunstroke*]. After much labour, Hyslop found that he [*No, not John but a David*] had been a little overcome by the heat but had never suffered permanently from it, and yet this statement is regarded as correct. [*Doubly untrue, since Dr. Hyslop stated that it was another David related to John who was affected by heat, and also that according to the children of this David, there had been no permanent effects, though doctors declared that one never fully recovered from even slight sunstroke.*]

The following is all that Dr. Tanner reports of a complicated group of statements in the mediumistic record:

The father spoke of visits to Hyslop's brother which Hyslop did not remember. But do not most fathers visit their children? Anyone could make such a reference without knowing anything whatever about a family.

[Who would dream from this that the "visit" was correctly related to a previous trip west, that the visit was not to one but to two brothers, that the brothers were correctly named, and that the communicator correctly stated that he went west to live after the visit?]

Instances of the constructive use of imagination are found in such statements as these: that Dr. Hodgson took no stenographic records, that Hyslop said that in some sittings he himself spoke no word, that "minerals are something practically every child makes a collection of at one time"—all untrue, and the last false as tested by every reader's recollection.

In the Proceedings of the S.P.R. (XXV, pp. 102-108) Mrs. Sidgwick politely demonstrates Dr. Tanner's perverse analyses, her reckless mis-statements and her singular logic, and says that she could "multiply instances of inaccuracy and misrepresentation." One is found in the "attempt to provide a common train of thought in three automatists to account for cross-correspondences on the words 'cup' and 'Diana,' and (in two of them references to Macbeth)." Miss Tanner says that she got a clue "in the fact that Henry Irving played 'Macbeth' and 'The Cup' in London that winter." But the facts were that Irving died a year or more before "that winter," and never acted in the two named plays in the same year.

I myself, for the sheer fun of it, compared many other of Dr. Tanner's summaries of incidents with the original records, and found them almost without exception atrocious to the point of being comic. It seemed to me that she was incapable of grasping the salient points in any paragraph more than two inches in length. Dr. Hyslop found in the 27 incidents from his record 148 mis-statements, and a host of omissions of important particulars, while she was silent on 38 incidents more significant than any she treated in her fashion.

Dr. G. Stanley Hall. This distinguished psychologist must also have been affected by the magic of the enchanted

boundary, else he would not have given his imprimatur to such a book as we have described, in a lengthy Introduction, ending with the words:

> It is significant, too, that the chief works of the English Psychic Research Society have never before had a searching, impartial, critical estimate, often as they have been worked over by believers. Those with scepticism enough to have been impartial have never been able to arouse interest enough to treat these studies thoroughly. Thus, I cannot but hope that this book will mark a turn of the tide.

A row of exclamation points ought to come after each of these sentences in turn. What bewitched Dr. Hall that he took all of his assistant's analyses on faith, and never looked up the original in a single case? Or did he, and was the spell even then too much for his discernment? To think that the book which he endorsed and which he piously hoped would mark a turn in the tide, has now been for a dozen years the laughing-stock of all who know the facts! There is evidence that the spell was really upon him, for he could not even get the title of the Society for Psychical Research correctly, and actually intimated that to be sceptical is the preparation for impartiality.

Dr. Hyslop showed that Dr. Hall, while suspecting without cause the completeness of the records made by psychical researchers, by his own admission was guilty of making incomplete records of his own sittings with Mrs. Piper. Mrs. Sidgwick points out his faults of experimentation, which psychical researchers have learnt to avoid. And Andrew Lang (*Proceedings* of S.P.R., XXV, pp. 90-101) makes merry with "the method and logic of your contributions to the book of Dr. Tanner." One funny instance which he mentions is where the ostensible communicator Hodgson complained with reason of Dr. Hall's "awful whoppers," says "I think I told you so before," and Dr. Hall remarks, in the book, "which he certainly had not." And yet he had, as any reader of the book can see. Mr. Lang turns Dr. Hall's words back on him: "It is *you* who here 'display the inability that we should expect from a secondary personality.'" What is this but another way of saying that the erstwhile alert psychologist, having crossed the fateful boundary, has fallen under the spell of an enchantment?

In a later fulmination against Sir Oliver Lodge (Boston *Herald*, Feb. 12, 1920), a typical piece of oracular generalization, Hall begins by calling Sir Oliver a "nobleman," which he is not, and saying that he was "once of high standing as a physicist," as though he had ever fallen from his estate. He asks, "Whoever heard of an up-to-date psychologist of the normal who advocates spiritism," "unless we except Mr. Myers?" And why should we except him—presumably because to accept

spiritism made him not "up-to-date"! And yet later he has to regret the "profoundly sympathetic attitude of William James," but then, "he died before the psychoanalytic movement was felt in this country," so cannot be called "up-to-date." To say nothing of the fact, to be adverted to later, that psychoanalysis cannot in the nature of things solve the problems which exist, I happen to know of three psychoanalysts, one of them of wide repute, who are interested in the appearances as of supernormal information in crystal gazing, psychometry, etc. But this very fact would probably make them old fogies to Dr. Hall, who scorns telepathy as he does spiritism. He affirms that psychologists believe that coincidences and the similarity of structure and function of the minds of friends and relatives are sufficient to explain all so-called telepathic phenomena. Friends and relatives are unnecessarily lugged in, as the phenomena are not limited to these as agents and percipients. But even in cases where they were—think of attempting to explain in this way the following: the agent imagines "Dostoievsky writing in a very bare room, I think in France, and hearing the bailiff people banging at the door, and pretending he is not in the house," and Professor Gilbert Murray says, "I think it is out of a book —it's Russian—it's a man inside a house and the people beating and beating on the door outside—and he's keeping quite still so they shan't know he is there—it's a big sort of a bare room and he is a writer—seems a mad sort of person—don't somehow feel as if I was going to get it—I think it is in France—but he must be Russian—I don't feel as if they were going to murder him at all—I should think it is a story of Dostoievsky, that I can't get —I have a feeling that I can't be right—are they bailiffs?" (*Proceedings*, S.P.R., XXIX, p. 109). Will Dr. Hall say that he believes that this result came about through coincidences and the similarity of structure and function of the minds of relatives?

Dr. Hall ends his article with the words: "I insist that there is no single golden grain of truth in all this mass of spiritualistic dross which will stand the assay of modern psychology. If there is, as so many affirm, what is it?" But where is the evidence that he has ever attempted the assay of any case upon which psychical researchers place emphasis? Or that he has ever experimented himself, except to prove that suggestion can paint upon the sub-conscious of the psychic all sorts of pictures, which no psychical researcher worthy of the name questions? If he is willing to attempt the assay of one case which covers not more than fifty printed pages, and to print his

explanation, he has only to say so, and the documents will be placed in his hands. This case has been recommended to a number of psychologists and others who use confident language similar to that just quoted, since it is one of comparative brevity, and the attendant circumstances singularly easy to appraise, and they all dodge it. There is one exception, a psychologist did promise to undertake the task and to publish his explanation; he has a copy of the record still after nearly three years, but has unfortunately been unable to find time. On his dying bed he will probably protest that he could easily have done it, if he only could have found the time.

Hugo Muensterberg, late Professor of psychology at Harvard University, wrote an all-round attack upon psychical research which Dr. Hyslop answered in the *Journal* of the A.S.P.R. (January, 1908). Therein he garbled records, though not so badly as Dr. Tanner had done. He scattered wild and random statements which are not even consistent with each other. He declared that in what professed to be communications from Dr. Hodgson through Mrs. Piper "there is nothing characteristic of the man who purports to speak," though his knowledge of Hodgson's characteristics was exceedingly limited; that "everything is characteristic of the woman," though he did not know Mrs. Piper and refused opportunities to study her, that Hodgson's "idioms blended with her memory of the man," although he had just declared that the messages contained *nothing* characteristic of his style. He depicted Dr. Hodgson as having been "absorbed by one passion" for many years, "to understand the conditions of existence after death—devoting his whole scholarly career to this one group of problems and discussing them a thousand times with his most intimate friends," though Dr. Hodgson had no such passion, the conditions of existence after death were never his quest, and he never discussed them once with one of his most intimate friends, Dr. Hyslop. Finally Muensterberg blurted out the truth, that his hostility to any possibility of there being evidence of the existence of spirits was in major part due to emotion. "Behind the mere argument of reason stands more powerfully still the argument of emotion," he says "his [the psychologist's] whole being abhors this repellant caricature of immortality," etc. Since science utterly discards emotion as a test of objective fact, what brought Prof. Muensterberg so completely under its vitiating influence, and caused him even to confess the fact without shame, if not the magic of the enchanted boundary?

Another article by Dr. Muensterberg, entitled "Psychology

and Mysticism," was answered by Prof. F. C. S. Schiller, of Oxford University, in what I take to be one of the finest pieces of polished satire in the language, as well as one of the most unanswerable expositions of the folly of scientific obscurantism in reference to the subject matter of psychical research. (*Proceedings*, S.P.R., Part XXXV). He shows the erstwhile astute Harvard professor floundering in a morass of blunders, fallacies, and "ridiculous and incoherent reasonings . . . as fine an example of the effect on the mind of a passionate 'will to disbelieve' as I have had the pleasure of meeting." Why did the brainy Muensterberg, whenever he wrote on a certain subject, immediately begin to drool blunders and inconsequences, and to wind in and out in his logic, if he was not smitten by a magic spell?

In 1917, Dr. CHARLES A. MERCIER, a specialist in insanity, published a book entitled *Spiritualism and Sir Oliver Lodge*. A considerable part of this is made up of a discussion of general principles, good enough, though elementary, to psychical researchers, and delivered in a tone of oracular finality worthy of one who at the end of his book announces that he is preparing "courses of study and books" on "Witchcraft," "Criminology," "Psychology," "The Grounds of Belief—what we ought to believe, to disbelieve, and to doubt and why," "Explanation—A Course of Instruction in Principles of Explanation and Causation," "Conduct—A Course of Study in the right conduct and regulation of action in all the circumstances and relations of Life," "Thinking and Reasoning," etc. We would say that one who knew all that could afford to be oracular.

But when it comes to the field of psychical phenomena, there is an appearance as though Dr. Mercier had never heard of it until somebody sent him *Raymond* for review. He says that this astonished him so that he sent for *The Survival of Man*, by the same author, of which he apparently had never heard, and was still more astonished by that. And then, according to his own account, he made inquiries, and found that such ideas had attained a very wide vogue. And having come out of his Rip Van Winkle sleep of 35 years to this extent, he read the two books by Lodge, and was prepared to blight the whole disgusting business of alleged psychical phenomena by the light of pure reason. In experiments conducted by Sir Oliver, Dr. Mercier can, by the telescope of imagination, discover all manner of defects which were invisible to the scientist of greater fame who was actually present. And yet he himself is so naïve as to say that if a man "has been seen to raise a full pint pot to his

mouth, and if when he lowered it the pot was found empty, that is proof that he has had a drink." Yet I have seen a conjurer duplicate that performance, and he had not had a drink.

Mercier apparently thinks that all the evidence for telepathy is in "The Survival of Man," and that collusion is the explanation of all that is perplexing in it. If he had any acquaintance with the many sets of experiments, with their conditions varied and imposed upon the principals, he might not be so dogmatic, or he might, after all. Perhaps he might intimate that Prof. Murray's remarkable feats were the result of collusion between himself and others.

He attacks the cross-correspondences between Mrs. Verrall, the accomplished scholar of Newnham College, and Mrs. Forbes. He mentions but two of these, one in the following terms:

> Again, on December 18th, attempts were made in Mrs. Forbes' script to give a certain test word, "Dion" or "Dy," which it was stated, "will be found in Myers' own . . ." Mrs. Verrall interpreted the test word at the time, for reasons given, as "Diotima," and a description of the same part of the Symposium, including the mention of Diotima, did occur in *Human Personality* (by Myers) which was published about three months later. This is quite as convincing as the bricks in Smith the weaver's chimney which "are alive this day to testify it; therefore deny it not."

Here Dr. Mercier is more reckless than even Dr. Tanner. She did look through the original report of the incident; all that Mercier did was to quote what are hardly more than references to the incident, and treat them as though they were complete. She stated a number of other details of importance in "Diotima" incident, threadbare as her recital is; he states particulars which in comparison with the mass which make up the entire incident are like the facts that Smith wore a Derby hat and was seen standing on a certain corner at 10 p.m., in comparison with the mass of circumstances which convict Smith of murder. Mercier quoted from Lodge, but Lodge was not summing up the evidence for cross-correspondence, but illustrating its nature, as one would discuss two or three bones of a dinosaur. Mercier, like the unlettered peasant, sneers at the isolated bones, and will not take pains to go and look where the entire skeleton is set up on view. He leaves his reader to believe what is not true, namely, that the two incidents which he cites are substantially set forth. One of them, which his quotation sums up in seven lines, fills nearly seven large pages in the original printed record. He declares that "there are very few of these so-called cross-correspondences," probably because he thinks that Sir Oliver mentioned them all; whereas there are many, and even many between Mrs. Verral and Mrs. Forbes alone. He quite neglects the cumulative effect of so large a percentage of correspondences in a series, which is exactly what strikes the scientific

unbiased mind most forcibly. This was probably not from *malice prepense*, but from sheer ignorance and such haste to demolish Lodge that he could not wait to learn more. There have been rumours that he has had other surprises since, in addition to the initial ones.

In every case of enchantment we can pause for but a rapid glance at the evidences thereof, not to narrate them in their detail and variety. We now turn to EDWARD CLODD, whc has written a book called *The Question: If a Man Dies Shall He Live Again?* The introduction by Professor Armstrong, F.R.S., to a book which is as scornful of telepathy as anything else, by some enchantment of the boundary was fated to select a "timely warning given by Professor Gilbert Murray," who happens to have been one of the best telepathists in his own person on record.

Mr. Clodd frequently misquotes, especially from Crookes. Ample proof of this statement and of others which I make can be found in my article in the *Journal* of the A.S.P.R., for December, 1920. In his attempts to summarize figures in the Census of Hallucinations he blunders like a schoolboy. His assurance is marvellous. On what sort of meat had he fed that he should have the face, after skimming a report, to place his dictum (p. 180) over against the verdict of Professor Sidgwick, Mr. Myers, Frank Podmore, Alice Johnson, and Mrs. Sidgwick, which they formulated after long and patient analysis which he did not study sufficiently to understand? They show why the figures warrant a verdict, he baldly declares that the figures do not warrant it, since the census was not big enough. If it had been bigger they might have added more emphasis to their very cautious opinion.

"George Pelham's" real name was *not* Pennell, as stated; a certain noted medium's name was *not* "David Dunglas Home"; his name was *not* "Home *or* Hume"; and he did *not* begin his public mediumship in his seventeenth year. Dr. Phelps was *not* a "Presbyterian" minister. But such errors are venial, though they betray amateurishness. When we come to the poltergist disturbances associated with the name of Dr. Phelps, the Congregational minister of Stratford, Connecticut, we find a statement worth while. "The report of them is practically valueless, because it was not set down by a son of Dr. Phelp's [*sic*] till *thirty years later*, and then at second hand, since he was no witness of what he affirms happened." If the Stratford affair is not worth consideration it is not for the reason assigned. Does Dr. Clodd suppose that there were no newspapers in the United States in 1850? The house was visited by editors and reporters,

as well as other persons, and accounts, some of them lengthy, were printed in many papers while the events were in progress; some of which I have elsewhere listed. The intimation that the story was solely dependent on what a son of Dr. Phelps wrote thirty years later is a laughable perversion of the facts.

Mr. Clodd is credulous in his acceptance of wild stories which favour his prejudices. He snatches at the myth of the medium's "Blue Book," a directory of which "the Boston section alone contains, we are told, seven thousand names," and has no awful misgivings as to how the mammoth tome could serve when a sitter is brought in unheralded and unnamed, from San Bernardino, California, or Kalamazoo, Michigan. And he credits the assertion that "above one thousand houses in London are tenantless because they are believed to be haunted," which means, if it means anything at all, that all seekers for houses to let carry with them a list of those reputed to be haunted, or that they have some occult power, when they see the "To Let" sign, to discover whether the house to which it is attached is or is not one of them.

In 1920, Joseph McCabe issued a book called *Spiritualism: A Popular History from* 1847. It is designed to be popular, but a history it is not. It is a diatribe based on selective attention, and is composed of sketches of fraudulent cases, together with a few burlesques on cases of a higher character, replete with blunder and innuendo. Space can be found for but one specimen, but it is quoted entire.

> In 1907 also occurred what is known as the "Hope, Star, and Browning incident," which is regarded as very impressive. Mrs. Piper, in America, gave (supposedly from Myers) a reference to "Hope, Star, and Browning." This was on February 11. It was then found that in the written records of Mrs. Verrall there were curious references to stars, to hope, and to Browning's poetry on January 23 and 28. The weakness is that Mrs. Verrall's record was already in America on February 11, and had been seen by the sitter, Mr. Piddington; because Hyslop tells us that he went straight from the sitting with Mrs. Piper to search Mrs. Verrall's script. He adds that, later, Mrs. Verrall, who "had not been told what was happening," received further references to the matter. But as Hyslop gives no date for this, it is useless. Indeed, unlike many of his colleagues, Dr. Hyslop concludes that in this case, "the evidence for cross-correspondence is not the best" (p. 173); and the reader will probably agree (pp. 200-201).

Woe to the amateur who relies confidingly on Mr. McCabe for his facts, since he was under the spell of the enchanted boundary as he wrote. (1) Mrs. Piper was not in America, and on the very page of Dr. Hyslop's *Contact with the Other World*, where the material which Mr. McCabe consulted begins, is the plain statement, "Mrs. Piper was in London." (2) Mrs. Verrall's record was not in America on February 11th, or at any time. (3) Mr. Piddington was not in America as is intimated. (4) Mr. Piddington's going from the Piper sitting to search Mrs.

Verrall's script does not prove that he had previously seen it. But if he had (since he was one of the Committee whose business it was to compare the scripts produced by the mediums involved in the tests), the fact is irrelevant, unless it is meant to suggest that Mrs. Piper may have looked into his mind by that telepathy which Mr. McCabe frowns upon elsewhere in his book. (5) The "further references" in the script of Mrs. Verrall were not rendered "useless" by Hyslop's not mentioning the date of them, since he had nothing to do with the experiments. Why did not McCabe seek the dates in the original record published by the S.P.R. instead of discounting an incident because of what an after commentator did not mention? (6) To stop with "Dr. Hyslop concluded that in this case 'the evidence for cross-correspondence is not the best,'" and not to add that, nevertheless, he regarded it good enough to prove cross-correspondence, is to mislead the reader. Besides, the faulty construction of sentences is liable to cause the reader to suppose that it was Dr. Hyslop who went straight from a sitting, and that he went with Mrs. Piper.

MARGARET F. WASHBURN, professor of psychology in Vassar College, in the summer of 1920 had an article in a periodical entitled *The Chronicle*, with the heading "Psychology and Spiritism." To this I replied in the October issue. Now Prof. Washburn is a learned lady, who is said to have a high reputation in her speciality. But when she crossed the enchanted boundary she met the usual fate. She declared:

> "The record of a sitting with a medium, to be really of scientific value, should contain not only what the medium and the communicating spirits said, but every word said by the sitter or by any other person present. This precaution has been almost uniformly neglected."

This is tantamount to a confession that the writer is wholly unfamiliar with the most important literature of the subject with which she is dealing, for the procedure which she recommends, and says has been almost uniformly neglected, has characterized the S.P.R. and A.S.P.R. for more than thirty years. She likewise supposes that psychical researchers do not take into account the resources and activities of the subliminal consciousness, which they are for ever discussing. She assumes that all psychologists are hostile to the spiritistic hypothesis, quite ignoring Myers, James, Schiller, Hyslop, and others. She says that "it is safe to say that everyone who undertakes to investigate in this field does so with a deep and powerful bias," and thus is brought into a dilemma: either she bases her arguments upon investigations made under a deep emotional bias which has vitiated her reasoning, or she gives forth opinions based upon no investiga-

tion of the subject she is talking about. She adds: "If he were really guided only by a perfectly impartial scientific curiosity, he would probably be willing to wait until the end of his life for the solution of that puzzle." That is, a perfectly impartial scientific *curiosity* would do nothing whatever for its own satisfaction. Scientific curiosity, which inspects everything else under heaven, cannot inspect documents dealing with the subject of survival unless it suffers from pathological bias. This amounts to an admission that there is an enchanted boundary, beyond which the human mind is helpless.

Finally, Prof. Washburn proposes to bring the matter to a test, and out of the 649 pages of a report by Dr. Hyslop she culls just two incidents, both expressly stated by Hyslop to be faulty. I have elsewhere shown that she sins against both by commission and omission, and that it is precisely the evidential features and the only ones so regarded by Dr. Hyslop which she omits.

Dr. Millais Culpin is the author of an amateurish book called *Spiritualism and the New Psychology*, and Professor Leonard Hill wrote an introduction for it. The evidences for enchantment in both I have analyzed at length. (*Journal* of A.S.P.R., February, 1923). Prof. Hill was so ignorant of the recorded evidence for telepathy that he supposed it covered by this explanation:

> "It is to be expected that the sensory stimuli received from a given environmental condition will often arouse the same train of thought in two or more people, standing together, especially in those who habitually associate. Such coincidences of thought, which astonish the ignorant, are due to natural law."

To him it is all of a piece with a family sitting at dinner, and all having the thought that the beef is excellent. What was there in relationship or environment or proximity which, when an "agent" thought of a purely imaginary incident—"Mr. S—— playing Badminton at the Badminton Club at Bogota, Lord Murray watching, and ladies watching, one with a fan"—enabled Prof. Murray, in an utterance of 62 words, to mention "people in white playing a game," the game "Badminton," S—— as a participant in the game, Bogota, "a games-club", and Lord Murray as present? Prof. Hill had better try a few experiments with his wife.

Dr. Culpin apparently is profoundly ignorant of Sir William Barrett's lengthy report on dowsing, but thinks he has solved the whole business by explaining that the movement of the diviner's twig is due to sub-conscious muscular action, which no intelligent person doubts, and to guess-work, judging by the

mass of cases with which he is acquainted, three in number and one of these from a newspaper, and a second told him in conversation. He annihilates an old recorded apparitional case by a process of imagining the facts quite otherwise than all the witnesses stated—a process which, as it had no warrant but prejudice, could be applied to any human testimony whatever. He makes Sir Oliver Lodge's very impressive incident of "Mr. Jackson," the peacock, ridiculous by quoting only the first lines of it for the purpose of showing that Lodge tried to help the medium, and very carefully stops at the point where Lodge tried to mislead the medium, who, nevertheless, poured out a lot of particulars which were by no means implied in anything that the sitter had admitted. And he pauses amidst his tilting at windmills to warn us gravely against "logic-tight compartments," and indulging in "pseudo-reasoning"!

Dr. C. B. FARRAR, a Canadian psychiatrist, had an article entitled "The Revival of Spiritism" in the American *Archives of Neurology and Psychiatry* for June, 1921, which is analyzed in the *Journal* of the A.S.P.R. for October, 1922. It is characterized by all the tokens of enchantment which we catalogued at the beginning of this paper, including the mis-spelling of proper names familiar to psychical researchers. Farrar's main thesis is that no man ever reaches conviction that there are spirits through evidence but that it is always achieved by "an act of faith temperamentally determined," which dogma pleasantly relieves Farrar of the trouble of paying the purported evidence any attention. His main argument in support of the dogma is that such men could not have become convinced by *evidence* (he puts the word between scornful quotation marks, since he is sure without examination that it would not be evidence to him), because they have been studying this evidence a long while! Sir William Barrett began his investigations "upwards of forty years ago." "Hodgson devoted years of his life to the subject." Others have "grown old in their quest." As there appears to be no reason why this logic should not be of universal application, the conclusion seems to be that the only way to reach a rational conclusion upon a subject is to refrain from studying it.

An article by one JAMES BLACK, in the *Scientific American* for September, 1922, was so full of misstatements as to call forth a chorus of protests in which one of the editors joined, in the December issue. No less than eleven proper names were misspelled, historical facts were outrageously misstated, and a document, the only source of information, was falsified in order to make out a case. As the writer was certain to be convicted, he

could not have intended all these errancies, therefore they must have been due to the enchantment of the boundary.

The same remark applies to Dr. A. T. SCHOFIELD, whc wrote a book called *Modern Spiritism*. We call attention to fourteen lines on page 20, wherein he speaks of "W. Stainton Moses, B.A.," "a college master at University College," and of "a D. D. Home," and then of "their advent and, at the same time, the wonderful talents of the Rev. Henry Irving, the founder of the Latter Day Saints, or so-called Holy Apostolic Church," which "combined to interest all society." This is all correct except that it is the initials M.A. rather than "B.A." which have a somewhat noted connection with the name of Moses, he was not a "college master," he was a master in University College School, and not in "University College," Irving and the popular vogue of his movement were both dead before Moses was born or Home was two years old, *this* Irving's name was not "Henry" but Edward, he had and claimed to have no occult talents as is implied, his followers were never called "Latter Day Saints," which is the title appropriated by the Mormons, and the official title of his sect is not "Holy Apostolic Church," but Catholic Apostolic Church. See *Journal* of A.S.P.R., March, 1921, for other errors in names and facts, contradictions in logic, etc.

JOSEPH JASTROW, Professor of Psychology in the University of Wisconsin, evidently has a Saul of Tarsus complex on the subject of spiritism, telepathy, and everything that savors of the supernormal, for he emits a stream of articles, lectures and interviews in opposition. He evinces no experimental acquaintance with the disputed phenomena, or first-hand knowledge of the records, and openly avows that "there is no real obligation to consider minutely all the circumstances" attending any claim (see his article in *Journal* of A.S.P.R., January, 1923), since it is sufficient to rely on certain scientific maxims, the "will to believe" of those who have reported affirmative evidence, and the "temper" under which it was accumulated. He reproaches the Research Officer of the A.S.P.R. for failing to be governed by dogmas which beg the very issues which the Society exists to try, and which, if assented to in advance, would automatically put it out of business. And, so powerful is the spell of the enchanted boundary, that he fails to perceive his comical position as an Advisory Scientific Counsellor of that same Society. He relies with touching confidence upon such writers as Clodd and Mercier, and, to crown all, refers with unqualified approval in a syndicate article in the public press to the work of Amy Tanner, the

greatest atrocity of misrepresentation that ever was issued on the subject. Personally a charming gentleman, and no doubt an authority on psychology, he seemingly cannot lift his pen to write a paragraph on psychical research without an error of fact or a solecism in logic falling from it.

The catalogue of the bewitched under the first heading of classification is by no means exhausted, but I have already been too long, and must sum up the other two classes in a few words.

Psychoanalysts are for the most part silent on the subject of psychical research, but when they do speak, it is to fall into the traps already mentioned, and also one peculiar to themselves. We find A. A. BRILL, translator of Freud, inventing a biography for Sir Oliver Lodge (in a newspaper article), encouraged, no doubt, by the inability of the dead to resent psychoanalytical imaginings regarding them. He forgets that Sir Oliver is not dead, and can refute the reckless statements that his convictions are due to the wish of an old man to continue his own existence, and to his desire to meet his son Raymond, by showing what everyone is supposed to know, namely, that his convictions were reached before he was an old man and long before his son's death.

The special trap that psychoanalysts fall into is well illustrated by the case of WILFRED LAY, Ph.D., in his book *Man's Unconscious Spirit*. I quote from Mr. Dingwall's review of his book (*Journal* of A.S.P.R., May, 1921):

> "Supposing that a medium has a sitting with a person, who she has never seen before. Supposing also that the sitter was told that he (or she) had previously had a nurse called Susan Potts, who possessed a peculiar trinket shaped rather like a scarab. Suppose, thirdly, that all these things happened to be true. Dr. Lay thinks that all this can be explained, and that the 'material' might certainly have formed part of 'the innumerable perceptions external and internal we have had during our entire lives.' Of course it might! The medium knows the name Susan; she has perhaps heard the surname Potts; she is aware that trinkets exist and that some are shaped like scarabs. What is supernormal is not the material but the *relation the information in the message bears to the sitter*. This relation Dr. Lay ignores, and the whole paragraph is so much beating of empty air."

I have talked with psychoanalysts and tried to make them see the point in the next to the last quoted sentence, and have indeed reduced them to a feeble pawing of the air, but never, I think, have quite rid them of the queer conviction born of the "will to believe" in their own particular complex.

There remains to consider briefly the clerical class of hostile adventurers into the psychical field. Most of these believe that all sorts of supernormal occurrences took place two and three thousand years ago, but that they ceased at about the close of the apostolic age, without any intelligible reason for so believing. Some admit that they probably occur now, but hold,

again for no intelligible reasons, that any external intelligence which may be connected with them must be diabolic. The most vocal and emphatic of these clerical classes are Roman Catholics and certain sects calling themselves Adventists. Almost without exception these fall into the same pitfalls which have been named, except the psychoanalytical one. I must limit my exhibits to one Catholic and one Adventist cleric out of a long list of the enchanted with which I am acquainted.

Father De Heredia has recently written a book entitled *Spiritism and Common Sense*. He differs from the most of his Catholic colleagues in thinking that diabolism has played comparatively a small part in the "witchcraft, black magic, satanic societies, and the like" of history, which were mostly "the inventions of ingenious, shrewd, imaginative men and women, to mystify their followers." This is probably a concession to "common sense," though it is not quite common sense to make the phenomena at the same time the work of imagination and of invention for a calculated purpose. But when we consider the many bulls of pontiffs which recognise and affirm the reality of witchcraft (especially the bull *Summis Desiderantis* of Eugene IV, and that of Innocent IV which directed authorities to leave no means untried to detect sorcerers and especially those who by evil weather destroy vineyards, gardens, meadows and growing crops), the *Malleus Maleficarum* or handbook of the Inquisition for the detection and prosecution of witches, and the dire results upon the thousands who were condemned as wizards and witches, and then turn to Father de Heredia's assertion that there was seldom any "origin of fact" to correspond, and, still again, our eye falls on his warning counsel that the judgment of the Church is to be followed on all such matters, it seems to us that he has involved himself in a bull of unpontifical character. Another logical difficulty is encountered when clerics write books denying that there can be communications and apparitions of a beneficent nature, although their Church has issued a whole library of stories narrating the beneficent apparitions and communications granted to the very choicest Saints of the calendar. And when Herbert Thurston, S.J., says that although the faithful must not have dealings with mediums, yet the Church does not condemn Psychical Research, which must necessarily deal with mediums, it would seem that all the faithful of inquiring turn of mind need to do is to call their dealings by the title "psychical research," and go to it.

Much of De Heredia's book is made up of descriptions of fraud, which are so trite that one is reminded of the reason

which King Kalakaua gave for not attending a horserace, "Everyone knows that one horse can run faster than another."

Adventists cannot view any evidence for survival with clear vision, since they wear the coloured spectacles of a dogma, to the effect that when a man is dead he is absolutely dead, and remains so until he is resurrected at the Day of Judgment. Ask them a question which you think will be embarrassing and it proves not to be so in the least, for they at once construct an epi-cycle to take care of it. An Adventist orator was asked about the apparition of Moses and Elijah on the Mount, and replied that they were specially resurrected for the occasion, but was quite certain that no one else can be resurrected for any occasion prior to the general resurrection when the constituate particles of all human bodies, miraculously preserved distinct, will be reassembled.

Considering their small numbers, the Adventists are diligent in issuing books and pamphlets against theories which psychical research must consider. One of these was written by a Professor RINE. It confounds Washington I. Bishop, the "mind reader," with Washington Irving, and actually calls him "the eminent author." It calls Prof. Charles Richet "the greatest authority on *medicine* in France." It declares that "after more than a quarter of a century of painstaking, scientific investigation of all sorts of occult phenomena the Society [meaning the S.P.R.] unanimously reports that the reality of Telepathy, Clairvoyance, Clairaudience, Telekinesis, Materialisation, Prevision, and Automatic writing and speaking, has been definitely proved." It refers to Hamlin Garland, an American novelist, as the "eminent Polish scholar," when he is neither a Pole nor erudite in the Polish language. It refers to the predictions in Mrs. Piper's script, and adds, "all of which actually took place." Then, having authenticated so much that "ain't so," it ascribes all the marvels to the devil and his imps. But the most staggering proof that Mr. Rine's intelligence was obfuscated by the influence of the enchanted boundary is found in his assertions that "Professor Wundt, of Germany, and Professor Carpenter, of England, and Professors James and Ladd, of America, succeeded in completely discrediting the old traditional psychology based upon the assumption that all mental life was simply the expression the various energies of an indestructible, etherial principle within man, named the soul," that "they proved incontestably that all mental phenomena are manifestations of nerve or brain energy, and that therefore, without brain there can be no intellect"; and that "this momentous achievement has naturally

dealt an irreparable blow to the immortality hypothesis." Rine could not have fallen upon worse selections in support of his views. It is well known that Wundt turned entirely away from his earlier materialism, and insisted on "independent psychical causality, which is related at all points to physical causality and can never come into contradiction with it, but is . . . different from this physical causality." Carpenter said that "the view here taken does not in the least militate against the idea that Mind may have an existence altogether independent of the body which serves as its instrument," and much else to the same effect. Ladd said that physiological psychology "shows no decisive reason against the belief that such a non-material and real 'unit being' as the mind is should exist in other relations that those of its present admitted dependence upon the structure and functions of the body," James's interest in the question of survival alone is a refutation of the reference to him.

As though to prove how far enchantment can go, Rine makes John Fiske a supporter of his dogma, by quoting a sentence which Fiske puts into the mouth of an opponent and then proceeds to refute at length, and this in a book whose very title, *Life Everlasting*, would seem to have been warning enough to a mind not under a spell.

It has not been my purpose in this article to champion any particular opinion on the subject matter of psychical research, but only to sketch a strange and seemingly irresistible tendency on the part of those who enter its field with hostile intent. No man wants to make a laughing-stock of himself. Then what induces these writers to shun real acquaintance with the matters which they discuss, to misquote or reverse the meaning of sentences before their eyes, to misspell familiar names, to rely without misgiving on secondary and unreliable sources, to misstate facts easy of reference, to employ schoolboy logic, to yield to emotion and boast of it, to parrot materialistic dogmas instead of discussing evidence, and to parrot dogmas regarding their opponents' intellects instead of meeting their arguments. Surely my hypothesis of the enchanted boundary is the most charitable one, and it is quite sufficient to explain the phenomena.

CONVINCING PHENOMENA AT MUNICH.

By Harry Price.

IT was with mixed feelings that I accepted the invitation of Mr. E. J. Dingwall, the Research Officer of the Society for Psychical Research, to accompanying him to Munich in order to witness the phenomena alleged to occur through Willy Sch., a boy medum and *protégé* of Dr. A. Baron von Schrenck-Notzing, who had kindly arranged some sittings for us.

What were we going to see? Were we going to the Bavarian Mountains to witness an ordinary boy do some very ordinary tricks? Just previously, I had been bitterly disappointed in the performance of one "psychic," William Hope of the Crewe Circle, whose "show" is reminiscent of the spell-binder of the market-place, and whose methods are almost as transparent as the "spirits" he pretends to photograph.

Was Willy genuine? Perhaps. The fact that nearly one hundred savants from various parts of the Continent had testified to the genuineness of the phenomena obtained through Willy Sch. conveyed nothing to me. It is not difficult to deceive many hundreds of persons at one and the same time, and in the full glare of arc lights; how much easier, therefore, to fool a few people in the tense atmosphere of the *séance* room illumined only by the sheltering rays of a dull ruby light? But, we were told, the control was "perfect." Did one ever hear of some extraordinary mediumistic phenomenon where the control was *not* perfect? Only this week I have been reading the account of a wonderful *séance* held in a smuggler's cave in the Isle of Wight, where the medium (wisely un-named), brought forth not only the spirit of the smuggler, but his murdered victim; the victim's relations; and a few odd spooks who were hanging around waiting to be released from their earth-bound condition. The reader is solemnly assured that the phenomena occurred under "test conditions," and that the control of the medium was "perfect!"

"But," it was insisted, "they can't fool you and Dingwall." Which compels me to remark that conjurers *have* been caught napping in the past. Bellachini, the German Court conjurer, failed to discover the tricks of Slade during the Leipzig experi-

ments of Zöllner, and Jacobs, another conjuror, was likewise deceived. Kellar, the American magician, did not detect Eglinton in his fraudulent manipulation of the slates; and Carl du Prel, in his *Experimental Psychology*, asserts that Daniel Dunglas Home was tested by Robert Houdin and Bosco and "both denied the possibility that the phenomena which took place could have been produced by prestidigitation." If professional conjurers "fall" so easily, what chance should we poor amateurs have of arriving at the truth? I again thought of that "perfect" control, and———Well, we should see.

The sittings were to be held at the Baron's residence in the Max Joseph-strasse, and we arrived punctually at the appointed time. We were introduced to the medium and the other sitters, comprising the Baron and his wife, his son, his daughter-in-law, Herr Bartels, an artist, and General Peter, the editor of the *Psychische Studien*.

Willy is a bright, intelligent youth of about eighteen years of age, and is passionately fond of outdoor sports, such as football and cycling. He was born in Braunau, an Austrian town on the banks of the river Inn, which forms part of the frontier line between Bavaria and Austria. He is of a very happy disposition, and appears quite normal in his everyday life. He has been apprenticed by Dr. von Schrenck-Notzing to a dentist. Those of my readers who wish to do so can see photographs of this remarkable boy in Baron von Schrenck's *Phenomena of Materialisation*. At the time the pictures were taken the Baron was sitting with him for teleplastic phenomena on the lines of the Eva C. experiments. The Baron found he could do little with him in the unsuitable surroundings of his home town, so arranged with the lad's father (a small printer in Braunau), to take him under his care at Munich. This was in October, 1921. Since that date he has given nearly a hundred sittings, and not more than above five per cent. of the *séances* have been negative.

Many scientists, doctors and University Professors have witnessed the extraordinary phenomena produced through the agency of Willy Sch., and none has suggested that the youth is normally responsible for the wonderful phenomena produced through his mediumship. This fact did not blind us to the necessity of finding out for ourselves whether the phenomena were of normal origin, and we even considered the hypothesis—however preposterous it may appear—that the whole affair was a "frame-up" on the part of the Baron and his friends.

We found, after all, that the control of Willy really *was* perfect, and it is this physical isolation of the medium from the

accompanying phenomena that makes the results so valuable from a scientific point of view. I will describe the methods employed to prepare the medium for the sittings. For the fore-control, Baron von Schrenck and one or more of the sitters go into an adjoining room with the medium, who is supplied with one-piece black tights, slippers, and dressing-gown. After the articles have been examined, Willy puts on the tights, which button up the back. Then he dons the slippers and dressing-gown, which is discarded when the *séance* room is reached.

The apartment where the sittings are held is a room about eighteen feet by twenty-four feet, with two doors and two windows. One door leads into a passage and is kept locked on the inside during the *séances*. The other door leads into an ante-room where the sitters assemble previous to the sittings. I must mention parenthetically that a sitting is divided into three distinct portions; in fact, it is really three sittings in one. After each portion of the sitting the medium is rested, refreshments are served, and general conversation takes place. Different phenomena are produced at each portion of the sitting.

Having formed a semi-circle in front of a large permanent cabinet erected for the Eva C. experiments, and which was *not* used during our stay at Munich, the medium is "controlled" by two of the sitters. Willy sits at the extreme right of the semi-circle, and one of the controllers holds both his hands and presses his legs against those of the medium to prevent the latter moving his feet. Often the controller removes his shoes in order that his feet may become more sensitive to the movements of the medium. Unlike some mediums, Willy raises no objection to this method. We formed the opinion that Willy was the most tractable medium of whom there is any record, and cheerfully submits to any form of control, the relaxation of which causes him genuine anxiety.

Another controller holds the medium's wrists. Besides this human control, the medium wears luminous bracelets, and has a row of luminous pins attached to the sides of his tights visible to the circle, who can thus see the luminous outline of the boy's body during the whole of the sitting. I could distinctly see the movement of his respiratory organs from my place in the circle.

It will thus be seen that Willy is on the extreme right of the circle, Baron von Schrenck being on the extreme left, the intermediate sitters joining hands.

It will have been gathered from the foregoing that only one hand in the entire circle is free, and that is the left hand of Baron von Schrenck-Notzing, who attends to the lighting and

winds the musical-box, the strains from which are considered helpful for the production of phenomena.

The lighting for the sittings is obtained from five red electric lights in a cluster, at the left side of the circle. The lights are regulated by a rheostat. The amount of light allowed was fair, and extra illumination was employed for some of the phenomena. I could see my neighbours plainly. I am used to working in the red light of the dark-room, and I have particularly good eyesight. I usually sat next to the Baron, and only once next to Mr. Dingwall. The average number of sitters was about nine, and the sitters themselves varied during the nights we witnessed the phenomena. The circle being in position, the Baron switched off the white light and the *séance* commenced.

Willy is not hypnotised, but goes into a self-induced trance a minute or so after the white light is switched off. When the controllers inform the circle that Willy is entranced, Baron von Schrenck addresses a few words to "Minna," a personality who is supposed to control Willy during the entranced state. It is "Minna" who is asked and answers questions, and it was to "Minna" that Baron von Schrenck appealed on the evening of our arrival, asking her to give us her best phenomena as we had come all the way from London, etc. "Minna" promised she would. These verbal preliminaries having concluded, the phenomena commenced.

The following are my original notes made during, or immediately after each sitting.

Report of sitting with Willy Sch., on Monday, May 29th, 1922:—

"The Sitting commenced at 8.35 p.m. I sat between Mrs. Schrenck-Notzing, junior, and Baron von Schrenck. There were six sitters besides myself. Mr. Dingwall was asked to control the medium in conjunction with General Peter. Baron von Schrenck was on my left attending to the musical box. We (Mr. Dingwall and myself) had previously casually examined the cabinet fixed across the corner of the room; also the smaller gauze cage[1], musical-box, bell, luminous pin-heads, bracelets, etc.

"The first portion of the sitting was not very successful, and after requests from the medium (entranced), for more noise, talking, etc., it was intimated that Mr. Dingwall should discontinue his control, the reason being that both he and I were new to the circle. One incident I must recall: a luminous pin dropped from the medium's tights, and fell upon the floor. Mrs.

[1] For a description of this see p. 321.

Schrenck-Notzing, junior, called my attention to the fact which I had already noticed. Shortly afterwards, the same lady again called my attention to the luminous pin which was then some distance nearer to us. It was suggested that the movement was due to supernormal causes, but it is possible that the pin was accidentally moved by the foot of a sitter.

"The next stage of the sitting was remarkable for some well-defined phenomena. During this period the medium was controlled by Baron von Schrenck's daughter-in-law and General Peter. After repeated requests for more noise, talking, etc., a decided creaking of the heavy table (which had been placed within the gauze cage) was heard. This table, a portion of which had been made luminous, was then heard to bump loudly upon the floor; at the same time the luminous markings were seen to rise. This occurred a second time. A large, heavy musical-box was then placed inside the gauze cage, and, at word of command, started playing. It likewise started and stopped at words of command in three languages, thus proving that the force exerted was controlled by an intelligent entity. The box was also seen to move, it having been made luminous in several places. A small luminous hand-bell was then placed on the table in the cage. It soon afterwards rang, and twice was thrown out of the cage. The table creaked again.

"The third portion of the sitting . . . after an interval, in which the medium rested . . . was again remarkable for some very fine phenomena. A small table (on which was placed a luminous rectangular card and a luminous bracelet) was placed on a larger table in front of the large cabinet. After the medium became entranced the card was moved, the bracelet was waved in the air, the table was knocked over. These same phenomena occurred again after an interval of a minute or so, the smaller table being passed, with one pause, completely around the larger one. [That this pause was necessary suggests that the levitating force, whatever it was, was unable to pass through the leg of the large table. A human being, duplicating this effect, would have to make this same pause (to enable him to get his hand the other side of the table-leg) *provided he was using one hand only.*] Extra red lights were used for this phenomenon.

"During this portion of the sitting a white handkerchief was dropped on the floor; it shortly rose in the air, the effect of the red light on the rising handkerchief against the black background being very conspicuous. A dim hand-like form or 'pseudopod' then appeared at the opening of the large cabinet. More movements of the smaller table concluded the sitting."

I need hardly say that we were very much impressed by what we had seen and heard at this, our first sitting. Though we had not thoroughly examined the *séance* room and apparatus used, we felt that the phenomena were genuine, and we decided to ask Baron von Schrenck if we could make a thorough examination of the room and accessories by daylight. The Baron at once gave us permission, and on the morning of May 31st we made a thorough inspection of the room, a diagram of which can be seen on page 172 of the English edition of the *Phenomena of Materialisation* (Kegan Paul).

We spent a considerable time in the examination of the *séance* room. We took down the large cabinet used for the Eva C. experiments. This cabinet is a permanent affair, and we experienced some difficulty in wrenching it from the walls to which it was nailed. We sounded the walls and made notes of their thicknesses. We took up the carpet and minutely scrutinised the floor, which is of parquet. We sealed our signatures to the locked and disused door leading into the passage. We examined the ceiling, which is of plaster; we removed all the pictures from the walls and changed what little furniture there was in the room. Finally, we located and inspected all the adjacent rooms adjoining the *séance* room. We found nothing unusual.

After this close inspection of the room where the sittings took place, we turned our attention to the various apparatus, including the gauze cage in which some of the phenomena occur. This cage resembles a large meat-safe with gauze panels. It measures about five feet high, two feet wide, and three feet deep. The door occupies one end and is swung on linen hinges, being locked to the side of the cage by means of staples and padlocks. In this door is an opening about three feet wide by six inches deep. This cage is placed in front of the circle with the opening towards the cabinet and *away from the medium*. It was in this gauze cage or box that we placed the oaken library table, weighing about thirty-three pounds. Some of the phenomena occur when Willy is placed *inside* this cage, but this particular method of isolating the medium was not employed at any of the sittings we attended.

We found all the apparatus quite normal and unprepared, and looked forward with still greater interest to the second sitting which took place on the evening of May 31st. I will continue from my notes made during and immediately after the sitting:

"There were present besides ourselves and Willy, Baron von Schrenck, the Prince and Princess of Parma, Professors Zimmer and Gruber, of Munich University, and a lady nerve specialist,

Frau Dr. Lebrecht. Willy was examined as usual, and our signed seals were placed upon the unused door leading into passage. One of us remained in the *séance* room the entire evening, even during the intervals between the three portions of the sitting.

"Sitting commenced at 8.55 p.m. Medium at once became entranced, and phenomena appeared almost immediately. Creaking and jumping of the table in the gauze cage very plainly seen and heard; cabinet also moved slightly. Hand-bell was asked for by Willy's control. When placed behind the cage, it was picked up, waved in the air, and flung on to Mr. Dingwall's knees. It was placed on floor again, and once again was moved. A musical-box placed on table in cage was played, and started and stopped at word of command, whether given in German or English. The box was apparently *wound* by the force producing the phenomena; the noise of the winding and the playing of the box being heard simultaneously, a very curious effect. Loud raps were then heard on the table.

"Other phenomena which occurred during the evening were a materialised hand-like form or 'pseudopod' waving from opening in large cabinet; handkerchief twice picked up from floor; small table waved in air and lifted some feet from the ground; luminous bracelet picked up several times, waved in air and thrown to sitters. Mr. Dingwall picked up luminous slate, held it, and the psychic 'force' pushed the slate from his hand, soft thuds or taps being heard behind the slate. Handkerchief was placed on slate, Mr. Dingwall held one end, the other dangled over edge of slate. The 'force' took the free end, and a gentle tug-of-war took place. Presently the 'hand' or pseudopod appeared over the edge of luminous slate, the black stump showing distinctly, and very weirdly, against the luminous surface. The last phenomenon was exceptionally wonderful: Baron von Schrenck and Mr. Dingwall each placed one hand on the small table, and the 'force' overcame their combined strength, the table struggling with the two sitters, who could not keep it on the floor. A portion of the table was broken in the endeavour to keep it quiescent.

"During the whole of this sitting, which was divided into three portions as usual, I sat between the Princess of Parma and Professor Zimmer. Everything was thoroughly examined before and after the sitting, the control of the medium (who was entranced and away from the phenomena) being perfect. Either Mr. Dingwall or myself remained in the *séance* room the whole of the evening."

We left this second sitting with the firm conviction that the phenomena were genuine, and were not the result of any trickery upon the part of the medium or the sitters. Our seals upon the door were intact, and no one entered or left the *séance* room without our knowledge. To that extent we controlled the sitters, the room, and the medium.

Our third and last sitting was on June 2nd. My notes are as follows:—

"We commenced at 9.25 p.m., the sitters present being ourselves, the Baron and the medium, Professors Bekker, Gruber and Gluge, General Peter, Doctor Marimowski, and Frau Dr. Lebrecht. I sat between Dr. Lebrecht and Dr. Marimowski. The medium became entranced within one minute of the white light being switched off. Although it was a very hot, still June night, and all the doors and windows were closed and locked, three times I felt a cold breeze pass across my face. This steady stream of cool air came from the left, away from the medium, and was experienced also by my neighbour, Frau Dr. Lebrecht. Soon afterwards the gauze cage moved somewhat. The hand-bell was then asked for [by 'Minna']; this was rung, waved in air, and thrown on floor. The musical-box was then placed on the table inside the cage, and soon afterwards commenced playing. Professor Bekker repeatedly commanded it to stop and then to restart. This was done, always correctly, the music stopping on the instant. The box was then wound by the invisible, but intelligent 'force,' the music playing meanwhile. This winding of the musical box is very extraordinary. This box was wound by means of a lever moved laterally, and I found by experiment that it took two hands to wind it—one to hold the box, and the other to move the lever. The musical box, having wound itself up, commenced to move across the table. The door of the cage was then opened as the 'force,' through the control 'Minna,' intimated that it was afraid of breaking the gauze panels. The table then began to move and gradually great force was expended on it, the heavy library table being banged up and down and eventually pushed over on to my knees—the gauze intervening—where I saved it and the cage from falling on the floor. The left corner of the table had pushed a hole through the gauze panel. 'Minna,' Willy's control, apologetically informed us of this fact before we knew it ourselves; we confirmed it only after the white light had been switched on, and the cage examined.

"The second portion of the sitting was marked by the 'force' picking up the white handkerchief six times in succession, and waving it about near the lamp. Extra red lights were intro-

duced for this phenomenon. The shape of the 'stump' or 'pseudopod' under the handkerchief could be seen. Sometimes the handkerchief would appear as if it were held from the top; sometimes it would appear spread out. The small table, luminous slate and bracelet were then introduced, the table, etc., moving rapidly and falling down. The bracelet was picked up by invisible hands, at the same time the 'force' attempted to restore the table, slate, etc., to their normal positions. The table was eventually broken in two places owing to the extreme power expended upon it. The luminous slate was then placed on the table, and two hand-like paws or 'pseudopods' were seen to creep over the edge of the slate, the black forms contrasting distinctly against the luminous surface of slate. The 'hands' then waved slate around circle, dropping it eventually at Mr. Dingwall's feet.

"The third portion of this sitting proved negative, the medium being too fatigued after the exceptionally powerful phenomena witnessed in the earlier part of the evening. However, we decided to try one experiment. A plate of flour, pressed smooth, was introduced into cabinet, and upon examination afterwards was found to be touched in two places, but we could not be certain if the marks were of supernormal origin. This concluded our last sitting with Willy Sch."

The above notes were taken either at the sittings or immediately after them. Mr. Dingwall also took notes, independently of myself, which upon comparison were found to agree in nearly every particular with my own. Both of us are convinced that we witnessed absolutely genuine phenomena.

I can assure the reader that every trick and "move" in fraudulent mediumship is known to us, and had we noticed the slightest suspicious action upon the part of the medium or the sitters, we should have recorded it. *Every trick requires conditions*; remove the conditions, and away goes the trick. The "three card trick" that the gentleman opposite you in the race train suggests as a pleasant means of winning his money, requires that the backs of the three cards shall be of similar design. Upon your insisting that the back of the "lady" shall be of a different pattern, the philanthropist will not further press you to relieve him of his cash. It was our business at Munich to ascertain whether tricks were possible under the prescribed conditions.

At the conclusion of each sitting Mr. Dingwall and myself analysed the various phenomena we had witnessed, and discussed the methods by which the "effects" could have been produced by legerdemain. We had the immense advantage of witnessing the same phenomena time after time; therefore we knew what we

were going to see beforehand, and were on our guard accordingly. The fact that we realised exactly the kind of phenomenon we were going to witness enabled us to eliminate all those factors whereby that particular effect could be produced by normal means, under the conditions obtaining at that particular sitting. No conjurer worthy of the name informs his audience beforehand what the effect or climax of his trick will be; nor does he immediately repeat a trick by the same method. Were he to do so, shrewd spectators would probably guess the *modus operandi* of the illusion, and would detect "how it was done." The psychological factor of the deception would be destroyed.

Conjuring has its strict limitations, though the layman does not seem to appreciate this fundamental fact. At the first sitting we realised that Willy, at all events, could not be responsible for any of the phenomena we saw, because *the control was perfect.* A person rigidly held hands and feet by two controllers cannot make a handkerchief float round the room. Try it and see. Try to make a handkerchief float around the room in any possible way you can. I will give you the choice of threads, wires, mirrors, air-jets, telescopic "hold-outs," trap-doors or confederacy. Having made the handkerchief float to your satisfaction, endeavour to hide your motive power from the searching scrutiny of half-a-dozen investigators. Then allow yourself to be rigidly controlled by two persons, and still produce the "phenomenon." You will agree with me that it is impossible to simulate this simple effect by trickery under the conditions enumerated above.

After our thorough examination of the *séance* room we were satisfied that no mechanical means were used to produce the effects. After our second sitting we came to the conclusion that the phenomena were supernormal and could not have been produced by anyone present.

If space permitted, I should like to discuss the dynamics of telekinetic phenomena, and the theoretical causes of the spontaneous movement of objects through a medium. As it is, I must refer my readers to the literature of the subject, where they will find several theories to account for the phenomena. The late Dr. W. J. Crawford wrote three works dealing with the telekinetic phenomena he witnessed at Belfast. He elaborated the theory of the so-called "psychic rods" working on the cantilever principle, and thus becoming capable of raising considerable weights. At our last sitting with Willy, I noticed these alleged "rods" apparently exuding from the medium. They had the appearance of beams of pale phosphorescent light, and the two

I saw looked as if they had been snapped off about three feet from the medium, a very curious effect.

Baron von Schrenck-Notzing is *not* an adherent of the Spiritual philosophy, and scoffs at the idea that the phenomena produced through the mediumship of Willy are the work of "spirits." He thinks perhaps that Willy has a dual personality in the shape of his "control," "Minna," who is able, by power drawn from the circle, to exert force at a distance. Though we saw some wonderful effects, the Baron and his friends claim to have witnessed still more remarkable phenomena, such as perfectly-formed materialised hands, and once, I believe, the bust of a girl. Willy himself used to sit for teleplastic phenomena when he was in Braunau. This, coupled with the telekinetic phenomena we witnessed, and the fact that the boy is so easily controllable makes Willy Sch. probably the greatest physical medium of whom we have any authentic record.

Since our return from Bavaria Willy has given several sittings at Munich University, where he has been investigated by a number of Professors and savants. These new sittings have been quite satisfactory, and the phenomena were witnessed as usual. How different to the fate of the Baron's former *protégée*, Eva C., at the hands of the Sorbonne iconoclasts!

Before concluding, I should like to state that it is extremely doubtful whether the wonders we witnessed at Munich have anything to do with "Spiritualism." The phenomena obtained through Willy afford not the slightest evidence for human survival and the continuation of life after death. It is not necessary for the investigator to be obsessed with that credulity which is regarded as a *sine quâ non* in the average spiritualistic circle. One will not inhibit the phenomena because one considers the whole affair a gigantic fraud. Willy submits to any control and any conditions, a beatific state of affairs in violent contrast to the usual type of medium whose spiritual "guides" pick and choose the sitters for him. It is the fraudulent medium who will not submit to scientific control; and the medium who "helps out" the phenomena will seldom help the investigators.

Further evidence for the reality of the Munich phenomena, with photographs of Willy, has just been published by Dr. von Schrenck as a supplement to the second German edition of *Maerialisations Phaenoment* (Ernest Reinhardt, München), to which I must refer those readers who are interested enough to learn more about this remarkable boy.

NEUROGRAMS AND SPECIFIC RESPONSE.

By H. F. Saltmarsh.

THE object of this paper is to examine the concept of a physiological basis of memory in the light of the principle of specific response and to endeavour to some extent to work out the details so as to be able to form an estimate of the physical equipment required. Dr. Morton Prince's theory of Neurographic Records may be taken as fairly representative of the physiological theories of memory. They all agree in accounting for memory by means of actual physical modifications of brain matter. Dr. Prince, himself, does not dogmatize as to the ultimate physical nature of memory, but suggests a psychical background not only for it but for all phenomena, in fact Pan-psychism; but this simply means that the word physical denotes a modification of a primitive psychical matrix out of which all existence is particularized. Memory, according to the neurographic theory, is proximately physical, and as such shares with the rest of the physical world all those attributes which go to make up that form of the ultimate psychical matrix.

For the purposes of psychology Pan-psychism may be neglected. We can accept the neurogram as a modification of a physical nerve cell, using the word physical simply to mean the possession of certain attributes.

As regards the principle of specific response, which states that each individual nerve cell responds in one and only one specific manner to stimuli, this, I believe, is so generally accepted that little need be said on the subject in this place. In no other way can we conceive the functioning of the nervous mechanism.

I propose to take as an example to be examined the memory of a face, a memory, let us suppose, possessed with such clearness that the original could be recognized out of numerous others, or let us say, the memory held by an artist such that he could produce a picture which would be a good likeness.

Now a memory of this sort implies a very large number of details of shape, colouring, and so on. The differences between one face and another consist mainly of minute differences of

detail. On the principle of specific response each of these details must have a separate cell in which the memory of it is stored. The memory image is a highly complex synthesis, no single nerve cell could contain it, nor could any single current of nervous energy (or whatever it is that is given out by the nerve cell in functioning) convey it.

There can be no doubt that all these details are conserved in the memory, although they may not all be reproducible at will. It is obvious that if there were no memory of details, if that is to say, a mere outline or schema of the face was all that was conserved, no recognition or reproduction would be possible.

Moreover, as further showing the synthetic nature of our memory image, the fact may be adduced that the original sensory materials, for example our visual impression of a face, are made up of a large number of separate stimuli, each rod and cone in the retinal area affected contributing its individual share.

If this be the case, can we devise any hypothetical means whereby such a synthetic image could be conserved in the neurons? We must suppose that the stimulus from each individual red or cone leaves its trace on a separate nerve cell every time that the stimulus varies in character, as when the various parts of the object looked at are brought rapidly upon the fovea, for, on the principle of specific response, no single cell could accommodate more than one, each of them being of a different nature.

We may then think of a memory image as being the result of the functioning of a co-ordinated group of nerve cells, each contributing its own particular share. Can we form any estimate of the number of cells required to furnish such an image?

A drawing or painting consists for our vision of a number of continuous lines or surfaces, although we know as a matter of fact that it is really made up of discontinuous particles, as may be seen with a microscope. It is not suggested that each of these particles is separately registered in a nerve cell, but from the composite nature of the registering apparatus, it is clear that continuous lines or surfaces could not be conserved.

We might take as an analogy the printed half-tone pictures such as we see in a newspaper, where the outline and shading is reproduced by a series of dots of varying degrees of heaviness or lightness.

I have estimated the number of dots in such a picture of a face measuring one inch by one and a half, as about five thousand, and this picture was only a very blurred representation, conveying nothing like the wealth of detail of a good memory

image.[1] Now the shape of such a picture is given by the relative positions of the heavier dots, such positions, being on a plane surface, are determined by two co-ordinates. Assuming that our memory image is of two dimensions only one might argue that two different responses were necessary to fix the position of any point and thus two separate nerve cells, but in order not to lay ourselves open to any charge of overstating the case, let us allow that the specific response of a single nerve cell is sufficient to fix the position of a point in a two-dimensional image.

But the image which is given in memory is coloured, and we know that sensations of colour are compounded out of four primaries. In very few, if any, cases would a point be pure primary; we shall not err on the side of exaggeration if we assume that on the average each point requires the co-operation of two primary colour sensations. We must thus add to our 5,000 a further sum of 10,000, unless we allow that the cell giving the position also gives one primary colour, in which case the addition would be only 5,000.

I very much doubt whether such an allowance is justifiable under the principle of specific response, but for the sake of moderation let us take the lower figure.

But this gives us only a flat coloured surface, whereas my memory image contains the idea of a third dimension. Doubtless all visual images are two dimensional, solidity being imported by unconscious inference. We ought, therefore, to allow in our estimate something for this inference, for presumably a number of separate nerve cells would be required, but how much to allow I can find no means of estimating. In like manner there are numerous other unconscious inferences, relations with other objects, ideas or memories which go to make up my memory of a face; it stands in a complex setting of time, place and circumstance, all of which mean additional complication in the nerve cell system. However, as we cannot form any numerical estimate of what this complication would imply, we will neglect it and let the number stand simply as 10,000, bearing in mind that the figure is actually much higher.

What we have arrived at so far is simply an immobile coloured image of a face, but I can picture to myself various modifications taking place, changes of expression, movements of the features and so on. I can picture to myself, for instance, a smile slowly spreading over the countenance. Let us see what this implies. The whole outline of the lower part of the face changes, the

[1] The usual range of spacing of the dots in a half-tone printing is from 65 to 155 to the inch, the smaller number being used for rough paper, the larger for Art paper. My estimate is based on 80.

mouth widens and the lips part, wrinkles appear at the corners of the eyes, and the expression of the eyes themselves changes, in fact, it would be a conservative estimate to say that 50 per cent. of the total surface undergoes some change.

Further, this change is not instantaneous but progressive, so that a mere addition of 50 per cent. to our total will not cover it. Now the only mechanical means which will give us an analogy for estimating the numerical value of this progressive change is the cinematograph. I find that to throw on the screen a picture of a face slowly breaking into a smile requires about forty separate photographs.

But all of the 50 per cent. affected would not be changed in each photograph; we should be safe, however, in allowing half. Thus we must multiply our 50 per cent. by twenty. This brings us to a total of one hundred and five thousand nerve cells required for the memory image of a face slowly smiling.

I might here point out that the fact that the expression of the eyes changes, shows how utterly inadequate is our estimate of 80 dots to the inch, where the image is supposed to be one by one and a half inches. In a printed picture of this size the eyes are only roughly indicated; there would not be more than 40 or 50 dots used in picturing them, and obviously a very much larger number would be required to give changes of expression. Is it necessary to say more?

Not only can I imagine a smile, but I can picture to myself numerous modifications, frowning, laughing, yawning, sneezing, etc., each of which requires a separate film, if I may use that allegory. Waldeyer has estimated that the brain contains on an average about one million six hundred thousand cells, but out of these a part only would be available as memory cells. Obviously the number is entirely inadequate for the requirements of the neurographical theory, unless we can show that each individual cell can either store up a complex synthetic image or else contribute its simple part in an indefinite number of different memories.

It is only the first of these alternatives which need be discussed seriously, the second merely shifts the difficulty from the cell itself to the connecting fibres.

Now is it possible to imagine any mechanical means whereby a single nerve cell could store and transit a complex image like that of a face?

The analogy of the telephone by means of which an indefinite number of different sounds may be transmitted over a single wire, will not hold, for in this case the qualitative heterogenity of the

sounds is transferred into qualitative homogenity of electric current differentiated only by wave-length and amplitude, which in turn are re-transformed into sound waves, and these, in their turn, are translated by the mechanism of the ear and the brain into sound sensations.

Sound sensations are recognized as words and given meaning in virtue of a pre-existing psychological setting.

In another point, too, the analogy fails in that the telephone is a transmitting instrument only, the qualitatively complex original must exist independently. It cannot conserve anything.

In order to effect conservation, we must add a phonograph to our transmitting instrument. In a phonograph the heterogeneity of speech is transformed into the homogeneity of movement of the diaphragm which is permanently recorded on the cylinder as a wavy groove cut in the wax. But here we get back to a parallel of the dots in a half-tone print. The record is made up of elements, that is to say, curved depressions in the wax, each differing from the others, and the principle of specific response forbids us to assume that a single nerve cell could accommodate more than one of these. The telephone and phonograph, however, deal with sound, whereas we have been discussing visual images. A nearer parallel for these is with the apparatus used for telegraphing pictures, but even here the same thing occurs, the selenium cell transforms the qualitative multifariousness of the picture into quantitative differences of electric current which have to be re-translated by the receiving instrument. Moreover, the instrument is a transmitter only, the original picture must exist independently.

There is also a further respect in which this parallel fails, the transmission takes place progressively by a process spread over a considerable time, it is synthetically built up bit by bit, whereas the memory image appears instantaneously as a whole. To transmit a picture instantaneously as a whole by telegraph would require an immense number of selenium cells, wires, etc., each of which would deal with a small part only of the picture, we should thus get back to something like the dots of the half-tone print. We can form no idea in terms of mechanism how a simple current could transmit instantaneously a complex image like that of a face. If, then, each individual cell can conserve and transmit only a single element, it follows that the complex image must be built up of parts, each part being the contribution of a single nerve cell. In which case the estimate derived from the half-tone process appears to be analogically justified, at any rate, if it errs at all, it is on the side of moderation.

It remains to discuss whether a cell can by any mechanical[1] means that we can imagine, store and transmit more than one specific impression. No doubt the response may vary in intensity, but can they vary in quality?

If the cell functions as a whole the thing seems to be impossible, assuming, that is to say, that the response arises solely and is determined entirely by the particular structure of the cell, an assumption which is implied in any mechanistic theory.

If we regard the cell merely as a transmitting instrument, analogous to the telephone, we can conceive it giving out, or rather passing through, an indefinite number of different responses which, by its mechanism, are transformed into homogeneous, though qualitatively different, impulses, like the electrical impulses on the telephone wire, which, in their turn, are re-translateable into the image of the original.

The only means which I can see whereby we can imagine a cell to give out various responses from its own proper reaction is by assuming that it is sub-divided into parts which function independently, or, in other words, to regard the cell as being a composite structure of smaller cells or nerve elements.

Now not only have we no evidence that this is the case, but all observation points in the opposite direction. The cell appears to be the ultimate indivisible nerve element.

In the case of the sensory receptor cells, such as the taste buds in the tongue, it is pretty well established that each individual deals with one only of the four primary tastes, the complex sensations of taste being made up by combinations of these primaries. Moreover, even if sub-division of the cell were to be allowed, it would not help very much, seeing that the over-complexity required by the neurographic theory would be transferred to the connecting fibres.

Or if we consider the matter of numbers alone, how could any possible sub-division of the cell meet the requirements of the theory? If it require, as we estimated, at the very lowest 100,000 separate elements to give by mechanical means a memory image of a single face slowly breaking into a smile, and we consider how many other expressions of the same face we can picture, the figures become enormous. I can imagine at least ten other such changes of expression, and assuming that half these changes might be carried out by the elements involved in the smile, we still arrive at half a million as the number required, and this for one face only.

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[1] Under the term mechanical I include chemical.

I do not know how many faces I can call up in memory, probably over a hundred, so we get 50 millions for faces alone. If we consider the proportion which the memory of faces bears to the whole content of memory, it is obvious that no figure we could name could possibly fulfil the requirements of the theory.

I submit, therefore, that the neurographic and similar theories fail when considered from the point of view of necessary equipment. The brain is not large enough to contain all the contents of memory as mechanical traces.

I do not propose here to discuss any psychological theory of memory, but will simply point out that if the brain be viewed in the light of an instrument which receives an image already existing and transforms it for purposes of transmission into homogeneous impulses of nervous energy, just as speech is transformed into sound waves and sound waves into electrical impulses by the telephone, then it is completely adequate for the purpose even from the mechanical point of view. Where the image exists and how it impresses the nerve cells, how the nerve cells perform this transformation, we do not know; but then, there are many things we do not know, particularly in connection with the relations between the psychical and physical.

SYMBIOSIS AND DISEASE.

By H. Reinheimer.

FOR some thousand of years it was known that beans or some kindred crop form the best preparation for wheat, and that a rotation which will preserve the fertility of the soil must include a leguminous crop. It was left to modern science to discover the true inwardness of this important fact, the implications of which are deep and far.

We know now that the plants principally concerned, *i.e.*, the Leguminosae harbour "nodules" upon their roots, consisting of colonies of bacteria, which bacteria live in a relation of Symbiosis with the leguminous plants. It is due to this co-operative alliance with bacteria that the plants obtain their all-essential supplies of nitrates. The plants and the bacteria, that is to say, help each other by exchanging their spare products. The mutual relation is one of systematic and reliable reciprocity with all this involves in character and in disposition. Alliances of this kind are indispensable to life.

There is nothing fanciful in this account of the phenomenon. It corresponds with the facts. Indeed, we are here dealing with one of the great facts of Nature. Apart from Symbiosis, there are no natural processes by which the gas nitrogen could be brought into combination in any workable quantities. Hence the problem had to be solved bio-socially, *i.e.*, by invoking the services of humble bacteria. The bacteria, as the *British Medical Journal* stated (18th November, 1922), were not created for the express purpose of inconvenencing or punishing a man, they came into existence to perform an indispensable function in Nature; and life on this planet is possible only in consequence of their incessant activities.

The importance of bacteria capable of fixing atmospheric nitrogen and of converting it into suitable food for the plants, constantly increasing the stock of plant food in the soil, is almost inconceivable. Our agriculture, nay our civilisation, depend upon this fundamental fact, which is also to say that they depend upon Symbiosis. Apart from Symbiosis, the alliance of the Leguminosae with bacteria would not pay, which would preclude any real success of the bio-social method.

It is not enough for the nitrogen to be fixed. The nitrogen which is fixed has to be converted into nitrates. This, too, is due to bacterial agency, *i.e.*, to groups of bacteria symbiotic amongst themselves. The synthesis is effected by symbiotic bacteria. There are other bacteria, of course, which, so far from being synthetic, are active in the disintegration of living matter. Jointly these two kinds are instrumental in effecting what has been termed the nitrogen cycle.

The number of plants which live in active Symbiosis with "microbes" is legion. The higher plant is able to spare some of its carbohydrate surplus in exchange for nitrates. It has been found that a continuous supply of carbohydrates from the green plant is a prime condition of the nitrogen synthesis. That is to say, the bacteria, like other humble workers, require to be remunerated for their labour. The higher plant acts as the fundamental capitalist in the matter.

For various reasons, official biology is not able to deal adequately with Symbiosis. Symbiosis involves food, and this, like the bio-sociality involved, is as yet a *terra incognita* to the orthodox. What little notion of these vital matters biologists possess commits them to the fallacy that the opposite of mutual aid, namely, mutual plunder, constitutes the rule of life. Hence, many are averse to, or strongly biassed against, the idea of Symbiosis. Yet Symbiosis is increasingly vindicating itself with every day.

The task of the scientific agriculturist of the future may be said to be this: to render the soil habitable for the desirable microscopic soil population. To do this, he will have to encourage the good citizens amongst the soil population and to discourage the bad. Here, then, we are confronted by good and evil, quite fundamentally, and the distinction must be made between the two quite as necessarily as it must in human society. There is no escaping the eternal difference between right and wrong anywhere.

Who are the good citizens in the soil, and how do they live? It is of vital importance for us to understand the conditions under which our invisible helpmates in the soil are able to flourish. For the more we help them, the more can they in turn help us. The good citizens of the soil population are what I have termed cross-feeders, in contradistinction to the bad inhabitants, which are "in-feeders." Our task as scientific agriculturists is to aid the "cross-feeders" and to suppress, or limit, the "in-feeders." For the cross-feeders are the true pioneers, the synthetic organisms, which enrich the soil, since they alone excel in Symbiosis.

By "cross-feeding" I mean feeding on material—generally of another kingdom—which obviates the non-symbiotic devouring of organism by organism. By "in-feeding," on the other hand, I mean the indolent appropriation of food manufactured by close relatives and the correlated shirking of the economic duty of production, or of counter-services in some kind. I have endeavoured to show in all my writings that symbiotic cross-feeding represents the progressive pathway of life, whilst in-feeding represents that of suicidal evolution. It has long been known, of course, that ultimately all animals depend for their sustenance upon the plant. But it can now be shown that there is an unwritten treaty between the plant and animal kingdom whereby the gifts of the plant enure pre-eminently to the benefit of the symbiotic animal.

How can we assist the good microbes in the soil? One practical method has been found to be that of keeping down their enemies by means of sterilising the soil, both by chemical and physical means. It is rough and ready, drastic treatment, but based on the knowledge that the good organisms are more resistant to adverse conditions than the bad, the predaceous ones, which, as in-feeders indolently prey on the toilers, and in so doing lose their vitality.

In the last analysis Symbiosis is, as I have said, connected with food. On my view of the matter, there had to be this connection. Food was too important a matter to be left unregulated and Symbiosis was a means of regulation. Symbiosis renders the elaboration and the supply of food subject to the maximum good of life, as may be demonstrated by the case of the Leguminosae. These useful plants, as already indicated, with their wonderful disposition to Symbiosis, are apt to enrich the soil in pioneer fashion, rendering it increasingly fit to sustain the life of other useful organisms. Which is also saying that by their activities and behaviour they avail towards life generally, in accordance with Ruskin's definition of usefulness, which should figure in biology quite as prominently as in political economy, that a truly valuable thing is that which leads to life with its whole strength, and that in proportion as it does not lead to life, or as its strength is broken, it is less valuable; whilst in proportion as it leads away from life, it is not valuable but malignant.

One kind of leguminous plant is often enough to store up in the soil sufficient nitrogen and to furnish by its own growth and decay sufficient organic matter to make the land fertile enough for any of the staple crops. A species of Japanese clover has been the salvation of hundreds of thousands of acres all over the Cotton

Belt of America and north of it—a fact of large significance from a sociological and a bio-social point of view. We are warranted in claiming a great part of the credit for Symbiosis.

Symbiosis entails a definite pathway of life, a steady and reliable disposition for work, for industry, for social behaviour and, accordingly, a considerable degree of restraint in matters of food and reproduction. Here we may learn how ideal work and ideal food go together. It has been shown that sulphur bacteria, which are responsible for the pure sulphur in the world, thrive best in a mineral solution, and that organic sources of nitrogen and carbon are without favourable influence on the growth of these bacteria. That is to say, these bacteria are useful as cross-feeders. Many of them, moreover, require free oxygen, which is supplied in Nature by associated green plants, *i.e.*, by partners in Symbiosis. Such partnership means nothing less than this: the substitution of social for anti-social methods, of fair play and fair compensation for theft and murder. Live and let live is indispensable in life. Compensation is the rule. Symbiotic partnership, of course, means division of labour; and all this involves specialisation. Whilst the plants specialised increasingly as producers of carbohydrates and of oxygen, their partners amongst animals, bacteria and fungi relieved the plants by co-specialisations from many domestic duties, so as to render the gains of the plant again beneficial to them. In other words, plants and animals became socio-physiological partners, and jointly forged the links of progress. Evolution is largely based upon this fundamental fact.

The reciprocity between microbes and the higher organisms constitutes intra-cellular Symbiosis. This is the only form of Symbiosis recognised by orthodox biology, which thinks of Symbiosis as a kind of parasitism—a contradiction in terms. But there remains the vast and important field of co-operation between animals and plants, over and above intra-cellular Symbiosis, coming under the head of what I have called "Norm-Symbiosis," since it is of determining importance in life and in evolution. This is the Symbiosis to which I assign chief importance. The subject may well be broached in conjunction with that of the Vitamines, the accessory food substances, as they have also been termed, the discovery of which have revolutionised the science of nutrition. The most remarkable fact concerning the the Vitamines from our point of view is that the plant alone can manufacture them. The Vitamines are indispensable to the growth, the health and the evolution of the animals. Think what this means. It shows the animal to be determined by the plant

to a degree bordering on the miraculous, unless we take the view that in course of evolution mutuality between plants and animals has been so paramount and persistent that the two have become almost to be related like the sexes, like male and female, *i.e.*, that they are one in reality, though separate in appearance.

"Hearts remote yet not asunder
Distance and no space was seen."

It was stated in *Nature* (November 11th, 1922) that the far-reaching importance of the qualitative composition of the diet of man and animals is being gradually appreciated, and the significance of those factors (Vitamines) which exist in extremely minute amounts recognised.

"The green tissues of plants would seem to be the chief site of Vitamin synthesis, although lower forms of plant life devoid of photocatalytic pigments can apparently produce the Vitamin B. Plant tissues undoubtedly form the direct or indirect source of Vitamin supply to animals, but we are entirely ignorant as to the rôle of the Vitamines in the plant itself."

The domestic rôle of the Vitamines may be of little importance. They may shine in Norm-Symbiosis rather than in internal Symbiosis. They may be destined for biological rather than for domestic use, much in the same way as the germ is destined to act on the ovum produced and matured elsewhere. There seems some warrant for that view in the fact that there are other substances, *e.g.*, the hormones, the chemical "messengers," as they have also been called, which act by inciting parts of the individual body remote from their origin, to perform their duties, including those of reproduction, in the right way and at the right moment. The resemblance between the Vitamines and the hormones is great and has been stressed before. What it points to is this, that the Vitamines represent quasi-genetic ingredients of the food, which would partly account for the resemblance that nutrition frequently bears to fertilisation. It was Samuel Butler who shrewdly adumbrated the genetic value of food. He suggested that eating is a mode of love. We must remember that the animal depends upon the plant much in the same way as the ovum depends on the germ. In either case there is a replenishment of force by specially tutored material. The strangeness of this view is merely due to the fact that it is a bio-social, a *tout-ensemble* view, one distasteful to specialists in their narrowness of outlook. To them the plant exists merely for itself. Even the sagacious Darwin succumbed to Hermann Mueller's view that the final end of the whole flower, with all its parts, is the production of seed, which is a denial of the fundamental treaty between plant

and animal, a treaty that is very real and advertised *inter alia* by the open exhibition of the plant's treasures, inciting the animal to help itself to them. Often the plant hangs bright pedals round its gift, baits it with nectar, and so turns the animal burglary that, as one writer puts it, in exchange for a hundredth part of a drop of honey the robbed one gets an apple weighing half a pound.

The action of the Vitamines is in a sense the alternative or opposite to that of the alkaloids, the vegetable poisons which are of appalling efficiency in animal physiology, and which the plant manufactures in self-defence against the predacity of many animals. Hitherto the significance of the alkaloids has scarcely been realised. In their case, too, we meet with an astounding awareness on the part of the plant—an awareness in respect of the physiology of the animal and of the way of affecting it for good or for evil.

It is a significant fact that the plant bestows blessings or curses in accordance with the treatment it itself receives at the hands of the animal. The phenomenon goes far to prove that righteousness is fundamentally striven for in Nature. There is only one kind of freedom to be desiderated, according to Huxley: the freedom to do right. And it may be said that this is also the freedom sanctioned by Nature. Things refuse to be mismanaged long. The mutual accommodation of beings demands obedience to the law of co-operation. The deadliness of the alkaloids proves that evil must result from animal transgression against the law of co-operation. The beneficence of the Vitamines, on the other hand, shows that the needs of the animal are ideally provided for by the plant, so long as the animal abstains from depredation.

It is a vital interest of the plant to keep the animal in tolerably normal condition and shape, *i.e.*, as a proper partner in Norm-Symbiosis. If the animal gets out of hand, it is apt to become monstrous in appetite and in size, until it destroys plants wholesale instead of being content with those parts which the plant can spare without great hurt. Examples of such plant-assassins are the elephant and the megatherium. The latter has become extinct long ago. The elephant is in course of extinction. The earliest mammals were little bigger than mice, now the mammalia can boast the elephant, and, under the aquatic members, the whale, which may attain to a length of over a hundred feet. Both elephant and whale are now known to be pathological giants. They suffer from giant's disease. They are veritable anachronisms in that their size is abnormal relative to that of the generality of animals and of plants.

Growth is a concomitant of evolution. But with Symbiogenesis as the universal principle of evolution, growth of a kind became universal—such growth, namely, as was in conformity with the requirements of Norm-Symbiosis and with the metabolism prescribed by it. I have dealt with Symbiogenesis and with normal metabolism elsewhere. A normal metabolism is one which, though not rigidly fixed for all time, is yet in accordance with the fundamental economy of Nature. It is of vital importance to understand that the normal increase of size amongst animals is one that proceeds *pari passu* with that of symbiotic plants. The plants, too, started quite small. Often they consisted of a mere thallus. In the course of Norm-Symbiosis plants and animals gained increments simultaneously, as well they might have done, seeing that in virtue of mutuality they augmented their diverse capacities for work, for mutual support. Aided by Symbiosis, the plant expanded its vascular system, developed woody fibre and arborescence, and, concomitantly, produced better and bigger supplies of food both for its own offspring and for its biological partners. Its size grew with its status, and this had corresponding propitious effects upon the growth of the animal. The increments of size came in the wake of increased powers for service.

And this is the true inwardness of Darwin's remark in the "Origin" that "after long intervals of time, the productions of the world seem to have changed simultaneously," which is an adumbration of inter-connected, inter-determined progress, such as that produced by Symbiogenesis. It is this principle, I assert, which, if obeyed, prevents abnormal habits and abnormal size. It is the anti-social organism, which, flouting this principle, and aiming at a life of self-sufficiency, becomes monstrous and pathological.

I have hinted already that our idea regarding size must be relative, like that of good and evil. But, by referring all changes of form to their utility in Norm-Symbiosis, we have a valid criterion of abnormality even apart from the local stigmata attending abnormal size. In general it is the monstrous appetite, the monstrous habit, that produces the monstrous form. Monstrous is that monstrous does. And this being so, sooner or later the monster is up against the powers for good implicit in the nature of the world.

This bio-social view of pathology is so important that it is fitting to produce further evidence in support of it. In *Nature*, November 25th, 1922, a reviewer of a book on "Animal Venom" tells us the following with regard to the principle of retaliation:

"In this broad outlook the obvious function of an animal venom as a gross means of defence or attack, becomes a very special and striking development of a general cellular disposition to defence or retaliation, and from this point of view the manufacture of toxin is to be seen as a primitive function of wide prevalence in the animal kingdom, and the manifestly venomous animals in every zoological group are to be regarded as a kind of powerful or privileged caste. To the cynic it may perhaps be some consolation to reflect that in Nature's livery we are all more or less toxic—that one touch of toxin makes the whole world kin."

Evidently retaliation is universal. And what is it that the very cell retaliates against? Predacity, in one shape or other. From the point of view of Natural Selection, it must appear true, as the reviewer says, that toxin makes the whole world kin. How much truer, however, it is that one touch of co-operation makes it kin. For there is the protoplasmic kinship of life to start with, and it can be shown that co-operation is the true alternative of retaliation.

Happily there are signs of a coming change of scientific thought, as against the old proneness to interpret kinship in terms of struggle, and health in terms of disease. In the *Nation* a scientific contributor pointed out that the almost ludicrous self-sufficiency of scientific attitude to which we have hitherto been accustomed is on the wane. One of the most interesting features of the present day, he thinks, is the growing tendency to find the scientific philosophy typified by Darwinism unsatisfactory. And he remarks: "There are scientific men who detest all implications that are other than scientific, but that does not destroy such implications; the matter must be faced. Science has arrived at a point where it has far-reaching philosophic—and, it may be, even religious—implications, and they must be courageously explored. It is an uncomfortable fact, to some men, that such implications exist, such men have performed their act of faith, and do not wish to see the main lines of their universe disturbed."

Did not Emerson foreshadow this reaction? Did he not declare some 80 years ago: "Science in England, in America, is jealous of theory, hates the name of love and moral purpose. There's a revenge for this inhumanity. What manner of man does science make? The boy is not attracted. He says, I do not wish to be such a kind of man as my professor is." As recently as November 23rd, 1922, the *Times* stated that science has provided the tools of material progress, but has not directed their use. "In our own country there is an almost steady diminution in its influence."

Science is indeed in great need of a change of thought, if for no other reason than that its own data, scattered over many fields, require to be united and the results unified to form a rational synthesis, one which, it is to be hoped, will consort better with the spirit of man than the generalisations current hitherto.

Just as Emerson urged the universality of the moral factor, so Samuel Butler urged that of the psychological factor. To him, form was mind made manifest in flesh through action. We should merely have to add the rider that it can be a duly "socialised" mind alone that will permanently fit into this world of inter-action and inter-dependence. A mind relying on short cuts is one too indolent and perverse to prevail, and hence the respective form, too, becomes destitute of survival capacity. If our organs are prone to seize more than a fair share of the manna in circulation, or have "sticky fingers," or seize what is not really intended for local consumption, then disease inevitably ensues. This, according to Sir Arthur Keith, is a physiological truth. But it is also a psychological and biological, or socio-physiological truth, recalling the admonitions of the prophet Habakkuk: "Woe to him that increaseth that which is not his: how long? and to him that ladeth himself with thick clay."

What wonderful justification we have in all this for the view that monstrous is that monstrous does! It is a curious and noteworthy fact, according to Dr. W. P. Pycraft, that "in all the larger groups of the animal kingdom, both fossil and recent, one finds one or more giant forms, and one finds, too, that amongst extinct forms the race attained to giantism just before finally becoming extinct.

What better explanation is there than to say that numerous species in their foolish attempt to flout Symbiosis and the honest pathway of life it involves, have played for anti-social aggrandisement to their own extinction? There is little escape from such an explanation, seeing moreover that the existing types that play a "lone hand" are invariably penalised in many more ways than has hitherto been seen. They present one obvious symptom of decay in the progressive loss of beauty. Beauty is, indeed, more than skin deep, and its decline is not a trifling matter.

Beauty is the concomitant of that widely availing utility which we have so far learnt to associate with a symbiotic mode of life. According to Emerson, who is here voicing many of the greatest thinkers, we abscribe beauty to that which is simple; which has no superfluous parts; which exactly answers its ends; which stands related to all things; which is the mean of many extremes. It is the most enduring quality, and the most ascend-

ing quality. The line of beauty is the result of perfect economy. It is the purgation of superfluities. All high beauty has a moral element in it,—" the beauty which hides all wisdom and power in its calm sky."

Emerson, correctly visualising the fundamental economy of Nature, associated beauty with the normal state; and he considered that there is a perpetual effort of Nature to attain it. In this, too, he may be said to have forestalled modern science. Dr. J. S. Haldane has recently demonstrated that there is a persistent and constant behaviour shown by the parts of the body in all important life functions, and that this must make for a totally new interpretation of physiology. Throughout all the detail of physiological reaction and anatomical structure we may discern the maintenance of an articulated or organised normal. There is, for example, an almost incredible constancy in the composition of the blood, and there are similar constants or normals with regard to our body temperature and with regard to respiration and nutrition. Were it not for these normals the reactions of the cells would become chaotic, and their structure would be completely altered, if not destroyed. Wherever we look we find " normals " to which return is made with astonishing persistence and accuracy.

Evidently the demand of Nature is that for ordered freedom. Nor is this confined to the sphere of physiology, but it applies also to that of biology, to the web of life. The demand is for all-round integrity, such as that associated by Emerson with beauty. The " normals " of Dr. Haldane are only "normally" there in their completeness, *i.e.*, when the organism shows the requisite integrity of behaviour. If it fails in this, the reactions of the cells actually do become chaotic, with " normals " correspondingly distorted, as in disease and in degeneration. By " normal " Dr. Haldane means not what is average, but what is normal in the biological sense. What " Normal " of respiration in a biological sense can there be said to exist in, say, a tapeworm, which requires nitrogen instead of oxygen as its source of energy? If the " normals " in a biological sense mean anything at all, they mean regularity and constancy in respect of Norm-Symbiosis, which primarily determines nutrition, respiration and structure. Secondarily, of course, they may come to be subservient to less holy ends than those of Symbiosis; but then they are in course of disintegration. The " normals," Dr. Haldane states, are the expression of what the organism is. But in view of the affinities linking us to the plant kingdom, and in view of the remarkable absence of mutual physiological repug-

nance, it is evident that we are fundamentally "plant-animals," such specialisation being most ideally in conformity with the fundamental economy of Nature. And this would seem to account cogently for the persistent endeavour of Nature to preserve and to rehabilitate "normals" wherever possible: they are requisite to Nature's fundamental economies.

Consider how profoundly we are linked to the plant. It has recently been shown (John F. Fulton, Jr., *Quarterly Journal of Microscopical Science*, vol. 66, Part II) that we are dependent for the function of respiration upon vegetable food to a degree little dreamt of hitherto. We require indispensably to be, not only plant-fed, but also plant-respired, failing which it will fare ill with our metabolism, our health, our beauty, our "normals." In this we cannot be deceived by the fact that there is usually some degree of beauty and even of normality left amongst otherwise degraded organisms. Life is a compound of energies, and though some be illegitimate components, it is a supreme injunction of life that the energies are to be used. Even degenerate organisms cannot escape all rectitude of life. Some art of life, some beauty and some "normals" persist, though they be but residual quantities. The perfect rendering even of the executioner's art involves some minor beauty, some minor "normals." But beauty and its concomitants become increasingly evanescent, as we approach the extreme end of predacity, as the following example well shows.

A parasitic animal, such as a tape-worm, for instance, which adapts itself to nitrogen instead of oxygen as a source of energy, is certain to engender an abnormal metabolism. Though its metabolism be but abnormal relative to the fundamental pact between plant and animal, yet this involves an anomaly, an antithesis grave enough to induce severe retrogression. The adaptation is one which contravenes the general good of life. An animal thus situated has an interest in evil, and, in view of the hostility and retaliation which it is sure to encounter, it will turn increasingly evil, both as regards character and structure, as is exemplified by the case of the tape-worm and its kindred in degeneracy, which "flourish" in proportion as normal life comes to grief. The case of the obligatory parasite, on the opposite pole to Symbiosis, thus affords negative evidence, confirming the view that health and progress derive their legitimacy from a compliance with the rules of Norm-Symbiosis, *i.e.*, the reciprocal differentiation between the "kingdoms."

Normally, as is well known, the animal is a user of oxygen, in exchange against carbon dioxide, for which the user is the

carbo-hydrate manufacturing plant; and the respective specialisations cannot be perverted without injury to organic life. Those animals which do not comply with this grand dispensation tend to frustrate the maximal good of life, which must take precedence of that of the individual. They are perpetrating sins of commission and of omission. Hence they suffer the penalty of disease and of degeneration, as is drastically evidenced by the various forms of nemesis of parasitism, which furnish abundant proof that adaptation in the direction of the tape-worm is tantamount to suicidal evolution.

It may here be recalled that parasites are aesthetically repulsive in form, colour and movement. Their ugliness is recognised even by biologists as representing the brand of degeneracy. They are "things of obscene and unlovely forms."

Whilst obligatory parasites, such as the tape-worms, represent an extreme of degeneracy, it should be borne in mind that there is a legion of milder cases of degeneracy which are evil and pathological only to a lesser degree. Here we have the case of the ordinary in-feeders—the habitual murderers and liers-in-wait, bearing the brand of Cain on every inch of their surface—which are parasites in all but name, and which are penalised only to a lesser degree than the rank parasites. Their case has hitherto not been recognised by biology as pathological. Often it has been thought to be rather the contrary. But what do orthodox biologists know about the range and significance of pathological processes? They have contemptuously neglected the study of food and of the early phases and causes of disease, and without an understanding of these important matters reliable biological judgment is impossible. To have laboured long in these neglected fields, is indeed to arrive at an appreciation of the difficulties in which biology is involved, uninformed as it is as regards the important distinction between good and bad, normal and abnormal. It is to commiserate with its plight, its inchoate state, which more than one writer has recently deplored. Consider what Prof. H. E. Armstrong, an eminent chemist, recently (November 11th, 1922) stated in *Nature*: "The whole field of food inquiry lies open before us."—"Who shall say that a host of our minor complaints are not due to dietetic deficiencies?"—"Who knows or does not know? At present we can *assert* nothing, either way, so crass is our ignorance . . ."

Our health depends on the perfect co-operation of a multiplicity of agents, both internal and external, and our physiologists are becoming growingly aware that the problem of interrelations is of prime importance. The organs of our body may

be said to form a colony of gregarious and social, semi-independent organisms, and our health of body and mind depends primarily upon due association as between the parts. The power of association, I contend, is at its maximum with a basis of symbiotic cross-feeding. It is a fact of large significance that in Nature such feeding furnishes the ideal basis for gregariousness and for state formation.

It has been realised before that gregariousness depends upon special kinds of food. But it has never been clearly seen that it is symbiotic cross-feeding which conduces most ideally to associations of a desirable, permanent and progressive kind.

An insect, obtaining from its food-plants oxygen, pollen and nectar, may be said to be in receipt of an ideal diet. The oxygen aids the maintenance of a legitimate metabolism, the pollen is rich in desirable proteids (not, as others frequently are, repugnant to the blood) and oils, whilst the nectar is rich in sugar and water, and both pollen and nectar contain appropriate amounts of various salts. For these and similar reasons symbiotic cross-feeding may justly be said to constitute the *raison d'être* of the wonderful social states of the bees, wasps, ants and beetles. Such feeding is also the secret of the astounding success of the insects as a class, as can be shown.

In-feeders, on the other hand, do not obtain a balanced diet. Theirs are irregular and promiscuous supplies of food. They rely upon short cut methods, and obtain, as a rule, an excess of nitrogenous food—inferior proteids, derived from the tissues of other animals, for which there exists fundamental physiological repugnance. Physiologists know that the power of the body of dealing with creatin, for instance,is very limited. Constant ingestion of this protein, therefore, must make for weakness the equal of disease. Prof. Noël Paton pointed out in his presidential address before the British Association (Sect. I) 1920, that the amount of creatin is increased by giving meat. The amount is likewise higher on a protein rich diet such as liver than on a protein poor diet such as grain.

Now, who are they likely to be constantly ingesting creatin and to suffer the result of poisoning, the symbiotic or the predacious organisms? The answer cannot be in doubt. On all scores, therefore, we find predaceous organisms condemned to inferiority.

Needless to say, the in-feeder tends to be increasingly excluded from direct supplies of the specially prepared and tutored spare products of the symbiotic plant. The result is a growing impoverishment of the protoplasm and a marked tendency to suicidal

evolution. In-feeding is a way of shirking many duties of metabolism. Hence the very power of metabolism suffers injuries, the result of disuse, or, more precisely, misuse. Thus, in cancer we encounter failure of metabolising the important element iron. Because of this failure there is what has been called cancerous anaemia, a very marked feature of this dread disease. And similarly it is with many important pigments, a deficiency of which arises with perpetual in-feeding. Such deficiencies are the fitting counterpart to what our physiologists are now frequently calling attention to, namely, proteid poisoning, or proteid intoxication. There is a large excretion of creatin in cancer of the liver. No doubt this is frequently due to meat consumption, too large for the general metabolism cnoveniently to deal with it. Even plants may get a surfeit of nitrogen, which causes them to make sappy growth and to become liable to infectious disease.

Nitrogenous foods are on the way to temptation. What good are the green parts of the plant—the direct source of iron and of pigment—to an animal that adapts itself increasingly to nitrogen, the sluggish element? Fruits and seeds and vegetables no longer tempt it with its cravings for high stimulants, with its consequently diminished digestive power. It shirks honest physiological effort. You cannot serve two ends of a nitrogen and a carbon adaptation at one and the same time. According to Mr. John F. Fulton, mentioned aboce, chlorophyll, so exaensively taken in with vegetable food, forms the basis from which a large number of animal pigments are built up, including the widely distributed respiratory pigment, haemoglobin. It has been shown in this connection that feeding with chlorophyll is apt to relieve anaemia, which goes to show that there is a return to a normal metabolism with a mode of feeding which is in conformity with Norm-Symbiosis.

Parasites in Nature are apt to get a surfeit of nitrogen, and so are many men and women amongst our own populations. Hence there is a striking resemblance in the morbidly pale appearance of cancer, from which countless city folks suffer, and that of parasites, the morbidity of which manifests itself in degeneration rather than in cancer. Parasitism, as is well known, or ought to be known, depends upon a "Royal diet."

An animal which flouts Norm-Symbiosis cannot obtain such high rewards as one which honestly plays the game. Its "Rewards" are rather retribution and negative compensations. It is much the same as in the economy of the individual body: the best supplies of blood normally go to the most valuable

organ, the brain. A tumour, on the other hand, is most imperfectly provided with blood vessels.

It has been asked what is the reason for the disloyal behaviour of the cancer cell, which is a parasite on the rest of the body? The reply is (*a*) evil communications; (*b*) temptation; (*c*) somewhat paradoxically—starvation. The evil communications are provided by the organism itself, by obtaining food feloniously, *i.e.*, by short cuts, causing it to become more or less debauched and to transmit like influences to its members. The temptation is provided by the appearance in the tissues and in the blood of superabundant nutrition, which, so far from prompting to gregariousness and high forms of association and integration, lures the tissues into the path of biological anarchism. And the starvation is due to the fact that, surfeit notwithstanding, vital food constituents fail to be elaborated. Hence the craving for such ingredients, which can be appeased only by unsymbiotically invading adjoining normal tissues.

The "hunger explanation" tallies with one to be found in the *British Medical Journal*, December 2nd, 1922, in a note on the "Origin of Cancer." We are told that there is a modification of the "colloidal nucleoprotoplasmic suspension of the cell" —another way of saying that the cell has become impoverished (often in its noblest parts), and is *pro tanto* starving. In the main there will be a "greater dispersion of granules," which, too, is intelligible on the hypothesis that there is mainly a loss of important ingredients. And with less material to be dispersed in the suspension, there is more space for, and more (uncontrolled) power of, dispersal or expansion. Hence we get, with a fictitious simplification of protoplasmic composition—the exact counterpart and also source of the anatomical reduction of a parasite—a superficial exuberance. Excessive dispersal in this case means a sudden and feverish activity on the part of the unduly emancipated cells. The loss of noble parts makes itself felt. The pillars of the polity are undermined. The bonds of "society" snap asunder, much in the same way as they did in the socio-political sphere during the French revolution. The cells turn, as the *British Medical Journal* says, anarchic. But the case is essentially no different from that of the tape-worm, considered above, which has become anarchic too, in an important sense, by dint of anomalous feeding habits with resulting anomalous composition and anomalous tendencies of life. The *British Medical Journal* thinks the anarchic character of the cancer cell particularly worth stressing, as the idea which should dominate all therapeutics. This has long been my view. But why shun the full

implication of parasitism and avoid the lessons of comparative pathology, offered in the case of parasitism in Nature? There is no safer clue to the etiology of cancer. Why does one never meet with any attempt of a consistent socio-physiology in this connection, where the concomitance of sociological and physiological factors is so obvious and striking? It is merely shirking the issue to avoid the inference that the true story of cancer is one of nemesis due to anti-social, anti-symbiotic behaviour. To the further question, sometimes raised, what factor ordinarily limits cell growth, I would reply: internal Symbiosis, controlled by Norm-Symbiosis. This explanation is congruous with a large body of evidence from every field concerned.

It has been found, according to the same Journal (November 11th, 1922) that one-third of cancers in men are found in the highly acid stomach; the acid large bowel is often affected, the alkaline small intestine rarely. The enzymes of the saliva cannot act very well in the strongly acid solution of the stomach, and hence there must ensue chronic indigestion. Now, normally the saliva of man is alkaline, whilst that of carnivores is acid—an antithesis of the tape-worm *v.* community order. The acidity is the result of inferior feeding habits, which are on the path of death rather than of life. Indeed, as a general rule, the reactions of living substances are alkaline or neutral; but with death they usually change to acid.

Let us take further evidence of the inferiority of in-feeding. It has been ascertained that the milk of cows can contain a good supply of Vitamines only when the cows have been adequately supplied with green food. What does this prove? It proves that to an animal the supply of vegetable food cannot be too direct. It shows that those animals, which, like the carnivora, live only indirectly on plants, cannot be so well placed with regard to health and evolution as those which, like the herbivora and frugivora, obtain supplies direct from the source. Nor would we care to feed babies on the milk of tigers instead of cows. Further, there is evidence that animal products are very unstable as regards their contents of Vitamines, which, in any case, can be regarded as residual contents only. It has been found that lard, for instance, which forms so large a part of the dietary of the poor, is often entirely devoid of Vitamines, because it has been exposed to the air. The anti-scorbutic Vitamines, in particular, are apt to be rendered inactive by atmospheric oxidation. What applies to lard applies also to cod liver oil. The access of a little oxygen is enough, it appears, to destroy the Vitamines, which, no doubt, are only precariously held by animal products.

Deprived of its due Vitamine content, food fails of its effects, and may even act as a poison. The danger is sub-normal growth, impaired resistance to infection, and disturbance of the power to produce and rear normal young.

How do the Vitamines get into cod liver oil? *Nature* (November 11th, 1922) reports thus: "It has been ascertained that the marine diatoms synthesise the vitamin, and that it is transferred to the tissues of minute animals (plankton), which thrive on the unicellular plants. These, in turn, form the food supply of larger species, particularly small fish, which in their turn are devoured by the larger fish, such as the cod. Through all these stages there is apparently a transference of the vitamin, ending finally in the storage in the liver of the cod. The modern methods of manufacture of cod liver oil do not appreciably lower the vitamin value, but there are wide variations in the value of different samples which are probably connected with the seasonal changes in the feeding habits or physiological condition of the fish."

Since then we have been reading (*Daily Mail*, February 13th, 1923) that we shall have to revise our ideas regarding the food of fish in general, and, instead of considering the cod as a ravenous consumer of the smaller fry of the ocean, place him in the status of a placid sea-grazer. Such and similar realisations are now constantly being made. Evidently the only reliable and direct source of Vitamines is the plant, and in-feeders cannot hope to obtain an adequacy of force from their ill-gotten supplies.

Again, Dr. Gladys Hartwell has recently shown that in the case of rats an excess of protein renders the milk of the mother rat poisonous and finally checked its flow. Apparently the mother suffered no ill effects from the excess protein diet. But in some cases there was a greater danger to the offspring when the mother gained in weight and flourished on this protein diet—a paradoxical result, as is thought. The explanation, I believe, is that an excess protein diet is far from ideal, though, as was seen in the above, such a diet becomes in a sense "normal" to an animal addicted to carnivorism or omnivorism. It is well known that numbers of animals fast prior to reproduction, which, no doubt, is tantamount to some degree of rejuvenation as against the otherwise injurious effects of their inadequate protein diet. Nature has her own "cures." We must not allow ourselves to be deceived by increase in weight, or even initial successes of species thus "flourishing," in view of what has already been stated above regarding giant's disease and suicidal evolution. There is evidence for the view that originally the mammalia were symbiotic cross-feeders. Such habits alone are socio-

physiologically adequate. Now, *qua* omnivore, *i.e.*, secondarily, the adult rat betrays no repugnance to excessive protein, since it has abnormally habituated itself to in-feeding. But *qua* mammal (and original cross-feeder) there is a decided repugnance to food which is socio-physiologically inadequate and, hence, detrimental to status. Hence this case merely illustrates the fundamental conflict in the results of bio-socially disparate behaviour. The antithesis is analogous to that between the appearance of the young of many parasites, as contrasted with that of the parents, representing a notable dimorphism, attended by functional disparity. It is as though what was apparently normal and fitting for the parents, namely, a sluggish habitat, were the opposite of what is normal and fitting for the offspring, namely, an active habitat. Here, too, we have a good illustration of what I have termed "anomalous normals." Evidently Nature is after the preservation of the real, *i.e.*, the ideal rather than the fictitious normal, since it is the biologically ideal normality that is so persistently and insistently re-asserted in the progeny. Nature is merely baulked in her endeavour to maintain normality in its entirety by the biologically bad behaviour of the organism, which, especially in parasitism, superposes pathological and suicidal development upon the wholesome groundwork of more remote ancestors, and thus checks and curtails normal evolution. The young parasite, so long as it is still active, preserves even a measure of beauty, which mirrors what may be called the residual integrity of the race—that vestige of honour and of righteousness, for the sake of which Nature still proceeds with the perpetuation of the species. Nature is evidently long-suffering and long-tolerant. Numbers count for nothing in her eyes. But values count. It is not for nothing that every organism is under the necessity to pass in its development through the unicellular condition—a costly process, were it not also a safeguarding one. It is Nature's way of imposing and, as far as possible, restoring ideal normals. In other words, it is a method of rejuvenescence. Hence the plastic embryonic stage, freshly purified, is nearer the core of racial integrity, or what remains of it, than the adult stage, which is nearer the shell of corosion and of senescence. Hence the occasional discrepancies as between the young and the adult phases of life.

Symptoms similar to those observed by Dr. Hartwell were met with by Prof. Ch. Richet in the case of serum-disease, or anaphylaxis. Here, too, we get fundamental protests against excessive or inappropriate proteid. There is such a disease—no one knows how extensive it may be—as alimentary anaphylaxis.

It is caused by the ingestion of albuminous substances, by pork, hare, shellfish. Fruits are not known to have given rise to it. Prof. Richet tells us in this connection that our "humoral" personality is absolutely due to the multiple ingestions and protein intoxications which have altered each of us by leaving indelible effects, which is an important testimony to the rôle of food in evolution.

Dr. Hartwell has found that she can prevent the symptoms by administering large quantities of Vitamines B. How is she accomplishing this? By feeding the mother rat with tomatoes, carrot, juices and potatoes. So fed, *ie.*, mainly "cross-fed," the toxic symptoms fail to make their appearance in the offspring. Small wonder many physicians are now experimenting with a protein free diet. But we have yet to learn the great lesson that nutriment, which is in appearance a boon to the individual body, may yet be a curse to the species.

Acording to Prof. Richet, the injection of albuminous substances renders the blood toxic and powerless to maintain the life of the nerve-cells. Much in the same way, I assert, in-feeding undermines the highest nerve-centres and eventually leads to atrophy of the brain. The brain is very sensitive to chemical influences, which, of course, come primarily from the food. It has been found that a little butyric acid in the system may induce extraordinary monstrosities in the head of some species. When something goes wrong with the chemistry of carbo-hydrate food, there may ensue the formation of butyric acid, as a by-product. And this may lead to monstrosities generally.

Remembering what has been said in the above regarding the power of retaliation, especially on the part of the plant, it is not difficult to understand that the chemistry of the animal may become disturbed to the extent of being poisoned by butyric acid in cases where the chemistry of the plant itself is perverted by prolonged predacity which it has been subjected to. Evil communications travel through an organic circuit much in the same way, though perhaps more thoroughly so, than do some of the Vitamines. So an injury, however small, to any part of the brain generally has injurious concomitants in remote parts of the body. A small injury of the hypothalamic region, close to the pituitary body, is sufficient to bring about a number of such correlated ill-effects. A local damage done to a tiny spot in the medulla oblongata, the lowest part of the brain, may produce glycosuria.

There is some evidence that certain extinct giants amongst animals had an enlarged pituitary body (one of the ductless

glands, which has to do with the regulation of the size and symmetry of the body). This, too, can be accounted for on the hypothesis of a deterioration of the metabolism consequent upon anti-social behaviour, as I have endeavoured to show in my various writings.

Let us take further illustration of the dire effects of an unsymbiotic adaptation of nitrogen. Such adaptation impairs the power of the organism to metabolise carbo-hydrates, which, in man, may lead to diabetes, the pathology of which disease, as is often stated, has remained obscure. It is now known, however, that neither fat nor protein can be properly utilised without carbo-hydrates, which seems to indicate that adaptation to carbo-hydrates must be precise, since it is apt to determine much else. In diabetes there is failure of due oxidation and use of glucose. True, we now know that the famous "islands of Langerhans" in the pancreas are directly concerned. Somehow these glands fail to do their duty. But this does not yet enlighten us as to the causation of the weakness. The cardinal fact is that we have here a perversion of the general metabolism, which is the cause of the atrophy of function on the part of certain glands. The perversion of the general metabolism is the cause of that of the carbo-hydrate metabolism; and this in turn is caused by unsymbiotic feeding habits. We breed men with too much guano in their composition, as Emerson saw long ago; and we may fitly apply Gresham's law of currency to the pathology thus arising: Habituation to bad physiological currency—such as excess proteid—in opposition to the requirements of Norm-Symbiosis—is antagonistic to the normal and ideal habituation to carbo-hydrates, such as is congruous with Norm-Symbiosis, with ideal work.

Just as in a country, flooded with debased coin, the nobler metals are gradually driven out of circulation, so in the individual body, flooded and contaminated with unsuitable proteins, the slighted carbo-hydrates are gradually driven out of general use. In either case there has been an impairment of essential integrity with the concomitant of a lowering in the affinities of the polity to the rest of the world. The "islands of Langerhans" lose their power of normal function in proportion as the organism proceeds with abnormal function, abnormal adaptation. The body becomes "intolerant," as is sometimes stated, to carbo-hydrates. We have seen that this is so in cancer with regard to iron and many pigments (although there be a morbid abundance of the latter in the cancerous tissues, much in the same way as there is an abundance of creatin in cancer of the liver and of sugar in the kidneys and other organs in the case of

diabetes). Diabetics, as is well known, suffer from thirst, and, frequently, too, they evince a voracious appetite. The craving for liquid is to aid the accumulation and elimination through the blood and the kidneys of the sugar formed in the liver, since the sugar can be neither oxidised nor used up by the system as normally it should be.

To offer carbo-hydrates to a diabetic is almost as incongruous as to offer it to a rank carnivore, which, under a similar diathesis, has merely earlier and more completely surrendered the power of metabolising carbo-hydrates than has our diabetic city dweler. We have seen how greatly carnivores have, as the result of a parasitic diathesis, become physiological antitheses to herbivorous and frugivorous animals. That the respective reactions are thus antagonistic is only in keeping with the fundamental bio-social antagonism, the incompatibility between biological right and wrong. Darwin pointed out that "no physiologist could doubt that a stomach adapted to digest vegetable matter alone, or flesh alone, draws most nutriment from such substances," which is an adumbration of the view that it is difficult to serve the ends of a carbon and a nitrogen adaptation—normality and abnormality—at one and the same time. The obligate carnivore may, according to Darwin's statement, be viewed as more consistent than the carnivore. Owing to its consistent love for nitrogen, no doubt, the lion has become what it is. Perhaps it is due to our admiration of that rare element, consistency, that we have often ranked this pestiferous beast with royalty. It flourishes on the principle of suicidal evolution, worse than diabetes.

But it is due to man's status that he cannot court nitrogen and suicidal evolution in the same way as the lion. He is reared and modelled on a higher principle than the carnivore, and he must suffer the penalties of acute disease if he despises what made him man. His salvation lies in consistency on the pathway of Norm-Symbiosis, which has been his great aid for ages past.

"In a normal animal," Sir C. S. Sherrington tells us, "glucose put into the circulation raises the ratio of carbon dioxide expired to oxygen absorbed, because the tissues consume the sugar. But glucose similarly introduced into the depan-created diabetic animal does not raise the respiratory quotient, the tissues no longer consume the sugar." By a "normal" animal we can mean only one than has not yet travelled too far along the road to anti-social, or "tape-worm" adaptation, which has not yet by slow accretion of habit flouted the normal metabolic ratio, namely that of the oxygen-cum-carbo-hydrate taken in and the carbon dioxide expired, as required by Norm-

Symbiosis. The pathology of one that has so degenerated is merely of a more diluted, more chronic order than that of the artificially depancreated animal. In either case the tissues fail to consume glucose as they ought to, though for different reasons. With the in-feeder nitrogen has so largely taken the place of carbo-hydrates that the whole metabolism had to be altered accordingly—altered, that is to say, in favour of a tapeworm respiratory arrangement rather than of a Norm-Symbiosis arrangement. Instead of a servant, nitrogent has become a master, requiring to be propitiated; and this means corresponding disuse of, and apathy to, sugar on the part of many tissues. It means a decline of the total carbon dioxide output; and, though by itself this may not mean diabetes, it has other deleterious correlations and indicates that the organism is not on the high-road to health and to progressive evolution.

Mr. H. M. Vernon has shown that the oxidasic power of an organism varies with the magnitude of its respiratory exchanges. Now, evidently the cross-feeder is better off as regards this particular than the in-feeder, for with a great output of carbon dioxide it can afford a better intake of oxygen; and cross-feeding with its symbiotic connections is particularly propitious to fruitful exchanges of this kind. But improvement of oxydasic power means increased viability and elevation of type. Those that are the best suppliers of carbon dioxide to the plant aid in an important way its faculties of elaborating substances essential to progressive evolution. Such substances, as we have seen, enure in the first place to the benefit of the cross-feeder, whose evolution is in no small measure directed and safeguarded by symbiotic influences.

The superior viability of cross-feeders manifests itself in many ways. They are capable of more protracted efforts, more continuous labours than in-feeders, incapable of toil and depending on sudden and short-lived efforts. Volumes could be filled with the evidence to this effect. The aforesaid, cross-feeding and symbiotic, Leguminosae are wondrously excellent as regards viability. In-feeding and parasitic organisms cannot vie at all in this respect, and, as a result, their existence is invariably precarious. One might contrast the Orchids, for instance, with the Leguminosae, which would bring out this difference very strikingly. It all goes to show that in-feeding and parasitism—forms of one-sided exploitation of organism by organism—do not pay in a real sense, but, on the contrary, produce weakness and disease. It is with health of body and of mind much the same as it is with wealth of purse. That is to say, health needs to

have a basis in work. No gain is effective and legitimate unless it is redeemed by labour or by service of some kind. In Symbiosis these requirements are ideally fulfilled; and this accounts for the wonderful avail of symbiotic relations in the world of life. There are no short cuts to health. The shortest road, as Bacon said, is commonly the foulest. Ill-gotten monetary gains confer only illusory benefits. They may swell the estate, whilst killing the owner. Similarly, promiscuous and unsymbiotic food-getting may dilate individual organisms; but will, in the end, lead to a curtailment of the species.

Quite recently the *Times* had some appropriate remarks on the "Short Cut," some of which may be worth reproducing, though they be but ancient wisdom in a new garb: "The short cut is an inconsistency and a negation on the road to character formation, which is no mere line joining halt-to-halt, but is revealed more and more fully at each step as itself the aim and object of the journey. To forsake that road for the fairest and straightest-seeming side-track is to forswear the goal itself. In the pilgrimage of life Bypath Meadow leads always to Doubting Castle and the dungeon of Giant Despair."

For "Bypath Meadow," "Doubting Castle," and "Giant Despair," read respectively "Predacity," "Disorientation," and "Giant's Disease"; and the case of progress in character will be seen to be not dissimilar to that of progress in organic evolution, where, after all, character, too, is the predominant force.

NEW WAYS OF INVESTIGATING THE PROBLEM OF PERSONALITY.

By Dr Erich Stern.

[*The normal interchange of views between German and English psychologists has not yet been fully resumed, and it is believed that the following contribution from the University of Giessen will be of interest not on account of its contents alone but as indicating the tendencies of a certain important school of German psychology.*—Ed. *Psyche.*]

I.

THE early nineteenth century was, in Germany, a great period of philosophy. But at the same time, poetry reached a culmination, never before known; historical studies began to flourish, and all the phenomena of human and cultural life were subjected to intensive research and reflection by scientific methods. In philosophy, the work of Kant marks a height which has determined nearly all his successors. His philosophy, however, ended in the great speculative systems of men like Fichte, Schelling, Hegel. These systems could not but break down; and when this moment came, confidence in philosophy of all kinds was destroyed. There followed a period, when—as Helmholtz says—the naturalist was too proud of his science as to care about philosophy, while the philosopher despised natural sciences. There began a period when natural sciences reigned absolutely; no other sciences existed for the naturalist, or at least he required them to proceed according to the method of natural sciences.

At this moment, modern psychology was born. For a long time, it had been bound in the chains of metaphysics; now it began to emancipate itself. Of course, the general condition of science could not remain without any influence on it; psychology endeavoured to become a natural science and to use the same methods which had proved their worth in the other dominions of natural sciences; this meant pre-eminently the methods of experiment. But it cannot be too strongly emphasised that

experiment is founded on certain conditions; a given totality must be dissolved into parts as small as possible, and it must be possible to compose the total unit again out of the parts; to predetermine the moment for a phenomenon to enter; to repeat the same experiment again and again, to vary the conditions, etc. All differences of quality must be eliminated and reduced to differences of quantity. The result to which all natural sciences strive is the general law of nature, comprehending any single case and regarding it as a special instance of a general law, thus making it possible to anticipate the effect of any cause which enters into chain of events.

Psychology endeavoured to proceed in the same way; it sought to resolve mind into several simple elements, and to compose mind again out of them; psychology endeavoured to find experimental methods. Without any doubt, the experimental way is possible; it is possible to regard mind as part of nature, and to submit it to the methods of natural sciences. It is certain that the introduction of experiment into psychology has led to important progress, chiefly in the domain of sensation and perception, for that branch of psychology is founded on natural sciences, and readily admits of the application of experimental methods. But experiment was fruitful also in other branches of psychology, though we must commonly satisfy ourselves here with only incomplete experiments. It must, however, clearly be understood that the experimental approach was only a new method, and in no way capable of creating a new psychology. Moreover, we must not neglect the fact that there are great differences between experiment in natural science and in psychology. In psychology it is very difficult to isolate any moment; mind forms an indivisible unit totality, everything is tangled with everything else, and every analysis destroys that continuity which is an essential sign of mental life. No sensation, no sentiment, passes without leaving traces which determine other subsequent sensations, etc.; our past is not dead, it is acting in every moment of our life, and helps to form all experiences; all that surrounds us also acts and influences our mental life. Only when we regard very elementary processes may we avoid these complications, and that was why sensation and perception were the principal objects of experimental psychology. The more mental processes become tangled the less experimental analysis becomes possible. The higher performances of mental life cannot be examined by means of experiment; it is not possible to synthesise a creative activity out of its elements, and psychology would confine itself to a very narrow domain if it

were only to treat of questions which can be experimentally investigated. The central problems of all psychology, in particular the problem of human personality, cannot be treated by means of experiment, the cause of this fact not being the incomplete result of the evolution of psychology at the present moment, but being based on the experimental method itself.

II.

It may easily be understood that psychology did not always put off the problem of human personality; but when it turned its attention to it, it became faithless to its own principles, for it was not capable of doing otherwise than collecting a number of single moments. This must be admitted also of the "psychographical method," which was brought to a very high degree of perfection by William Stern.[1] The psychographical method, as opposed to the biographical, does not proceed from the total unit of personality, but from the variety of individual characteristics which it arranges according to psychological points of view. Individuality is therefore dissolved into a series of signs, its unity is destroyed. On the other hand attempts are made to synthesize it again out of its parts. There are tables of characteristics, the so-called "psychographical scheme," by means of which this task is supposed to be solved. The table contains a great number of questions intended to determine whether a person has certain qualities or not. William Stern, in conjunction with Otto Lipmann and Baade,[2] has published such a scheme, which was used by Margis,[3] in giving a "psychogram" of the German poet, E. T. A. Hoffman. The collection of single characteristics, according to an appointed scheme has, without doubt, great advantages; for instance, it makes it possible to inquire about the occurrence of certain qualities, or to compare the frequency of certain characteristics in different groups, the influence of sex, nation, vocation, etc., on these characteristics; the investigation of heredity cannot overlook this method, as I have myself stated in a former paper.[4] But I believe it to be impossible to build up personality out of these fragments, and the defenders of this procedure themselves are obliged to confess the method unsatis-

[1] William Stern, Die differentielle Psychologie in ihren methodischen Grundlagen. Leipzig, 1911; p. 318.

[2] Baade, Lipmann, Stern, Fragment eines psychographischen Schemas. Zeitschrift für angewandte Psychologie, 1909, III; 191-215.

[3] Margis, E. T. A. Hoffmann, Eine psychographische Individualitätsanalyse. Beiheft 4 zur Zeitschrift für angewandte Psychologie. Leipzig, 1911.

[4] Erich Stern, Pathopsychographische Untersuchungen, I. Ueber die Notwendigkeit, den Wert und die Methode psychographischer Untersuchungen in der Psychopathologie. Archio für Psychiatrie, 1918; T 61, Helft, 2.

factory. They tell us that the "psychographical scheme" shall be nothing but a fundamental condition for the investigation of personality; the scheme shall give the "raw material," which must be further treated in order to yield a real picture of individuality.

In asking what makes possible this study of the collection and treatment of the isolated signs, we may notice that some conception of the unity of personality is an essential prerequisite without which we are merely noting isolated characteristics not related to each other and can never attain to a picture of a real personality; without the conception of a unity the collection of signs is useless; for every sign has a relevance to the totality of personality which is formed by this unity. Only if the total unit is already known can all the single signs be collected; they may then complete the picture gained before. Only a psychology that takes its origin from the central unity of personality is capable of investigating its true character.

III.

In searching for a method of investigating the problem of personality there are two points of view which should be clearly distinguished: the one is that personality is an indivisible unity; the other raises the question of in what this unity consists. Each problem is independent of the other, so that those who agree with us that personality can only be understood as a unity, may disagree as to what constitutes the unity. There can be no doubt that we shall best find the constituent moment of personality by studying well-marked cases. In considering such men as Luther, Napoleon, Cromwell, Shakespeare and Bacon, we shall see that their characters were developed in accordance with different scales of values. That, for instance, which characterises Luther is the fact that all his life had been formed by religious values; his life cannot be understood otherwise. Cromwell was a great statesman, the highest value of his life being the political value; the ideal of Napoleon was also of a political nature; he endeavoured to win an empire dominating the world. Shakespeare, one of the greatest poets of all times, can only be understood as the creator of works of art; Bacon was the first great investigator of modern times.

We have seen above, that experimental psychology, based on the principles of the natural sciences, resolves personality into a number of single characteristics; but it must also be pointed out that it cannot inquire into the problem of value; for all natural sciences eliminate the idea of values; they search only for the

general laws of nature—values do not exist for them. We see now why experimental psychology cannot solve the problem of personality, and we are obliged to contend that experimental psychology has done nothing to advance our problem. This is the reason why many people believed that scientific psychology was incapable of treating it at all, and that we were destined to satisfy ourselves with that knowledge of man which we always use in our daily life. Experimental psychology has been without importance to the historian or to those who study historical and cultural phenomena, but we must not conclude that psychology cannot deepen our knowledge of man, or that it is not possible to treat the problem of personality by scientific methods; on the contrary we must raise the question of whether there is not some other form of psychology capable of solving our problem.

Now we must remember that the natural sciences constitute only one group of sciences. We have seen above that in the beginning of the nineteenth century there had been another group of sciences whose object was the study of human culture and history; we call this group "Geisteswissenschaften," a term that cannot be translated into English, for English science had taken quite another line of development, and there is nothing corresponding to our "Geisteswissenschaften." (The term "moral science" does not really describe what is meant by "Giesteswissenchaften"). It must be stated that the relations of the "Geisteswissenschaften" to this subject are quite other than those which obtain in the natural sciences. While these are searching for general laws of nature, while they are eliminating "values," the object of the "Geisteswissenschaften" is always the individual who ought to be understood; their objects are human and cultural works. Without the conceptions of "values," the "Geisteswissenschaften" cannot be undertaken.

All values, however, have been produced by man, and take their origin from his mind, and it is the peculiarity of the human mind to be capable of producing objective works representing values. It is the near connection of values with the material world, that we call culture. The object of the "Geisteswissenschaften" is therefore the understanding of these objective creations, while the investigation of psychological "acts," by which the cultural phenomena are created or understood is a psychological task. This psychology cannot be undertaken by the methods of experimental psychology developed on the model of natural sciences; on the contrary it must consider from the first the objective creations of value. This psychology alone can be of importance in investigating the problem of personality; for

we have recognised its character in being directed to values. As opposed to the other variety we call this psychology " geisteswissenschaftliche Psychologie."

It must be said that the " Geisteswissenschaften " have to-day entered upon a new stage of development. We must deny to natural sciences the sole right of calling themselves sciences, and of pretending to give a picture of the *whole* world; human history and human culture being another aspect which cannot be investigated by the same means, and must not be neglected.

Wilhelm Dilthey, whose life went back to the times of the first great period of the " Geisteswissenschaften " in the first half of the century, saw the growth of the natural sciences and their brilliant victory, and of French and English positivism, but he none the less guarded his historical sense. His aim has been to show the self-independence and the originality of the " Geisteswissenschaften " as opposed to the natural sciences, and to lay their methodological foundations as Kant did for the natural sciences. All his works are directed towards the solution of this problem, from his " Introduction to the Geisteswissenschaften "[1] to his last great work, " The building up of the historical world in the ' Geisteswissenschaften.' "[2]

With William Dilthey, a new period in the history of the " Geisteswissenschaften " is beginning. It is from him that all modern authors in Germany start investigating cultural problems, or at least they are greatly influenced by him. I mention only a few names: Eduard Spranger,[3] Theodor Litt,[4] Erich Rothacker,[5] Hans Freyer,[6] and others.

IV.

All values have been created by man; before having been created they must have been given an individual mind. We are allowed to assume that the structure of human mind and of the objective creations of value are identical. It is not possible to prove this hypothesis in this paper; we tried to do so in our " Introduction to Pædagogics,"[7] which continues the investigations of Dilthey and Spranger and applies them to pædagogics. The unity

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[1] Einleitung in die Geisteswissenschaften (Gesammelte Schriften, Bd. I). Leipzig, 1922.

[2] Akademie v. Wissenschaften zu Berlin, 1910.

[3] Eduard Spranger, Lebensformen. Geisteswissenschaftliche Psychologie und Ethik der Persönlichkeit. III. Aufl. Halle, 1922.

[4] Theodor Litt, Individuum und Gemeinschaft. Leipris, 1921.

[5] Erich Rothatker, Einleitung in die Geisteswissenschaften. Tübingen, 1919.

[6] Hans Treyer, Theorie des objektiven Geistes Leipzig, 1923.

[7] Erich Stern, Einleitung in die Pädagogik. Halle, 1922.

of personality must be seen in its being directed towards values, and only from this central point of view can personality be understood. When may we claim to understand anyone? We must here clearly distinguish two different facts; we have understood a single manifestation if we are able of reducing it to the unity of personality existing in the given moment, but we only understand this personality itself if we are capable of pointing out the individual centre forming the unity of personality. In what a man sees "value," especially in what he sees the highest value of his life, that value, in fact, which makes life important to him, that is what we must know if we are to be capable of understanding his personality. For instance, if we find a man who sees the highest value of his life in eating and drinking, having only a smile for those who devote themselves to sciences or to arts and who pass their life working, we can only understand him from this point of view; we are at once enabled to range him into a certain scheme. Another, however, who sees the value of his life in the creation of works of literature, of science, or of art, can only be understood from this centre. The first has the centre of his life in sensual pleasures, the other in scientific or artistic works. It must, however, be pointed out that there is not only one single value in a personality but several, and it may even be said that all values are given in every personality: the man who has his centre in sensual values will acknowledge the artistic values at least in the form of luxury, he will estimate sciences at least in so far as they are fit for enhancing his enjoyments. The man of science cannot live without eating and drinking, and he may also have artistic experiences and the like. So we see, as stated above, that all the value-tendencies are present in every man, but every tendency in a different degree; one will be predominant and the others will subdue themselves thereto, so that there will follow a certain piling up of dispositions of value in every mind. We speak of the *structure of mind*, and now we can define this conception: "We understand by mental (geistige) structure a closed coherence of dispositions of experience and creation which is organized according to directions of value, but having its centre in relation to a unity of value, which may be experienced, i.e., in a mental (geistigem) Ego."—(Spranger).

If we desire to form a picture of the possible forms of individuality it will be necessary to look for the possible directions of value. We have seen above that all of them are present in every personality, but if we now assume in turn that one of these directions of value is dominant, and investigate the

subordination of the others, we shall be able to set up a number of types of individuality to which all the varieties actually occurring in life may be reduced. It was the great achievement of Eduard Spranger to have drawn these types in his work "Lebensformen" (forms of life); he calls these types *forms of life*, because the experience of value is the form under which man sees the world and life, under which, indeed, his life passes. He differentiates six types: the economical, the theoretical, the artistic, the social, the political and the religious. It is impossible to describe here all these types in detail; it may only be said that the economical man sees the value of his life in economical work, that is to say, he measures everything on the principle of utility, in order to achieve the greatest results with the smallest efforts. The highest value of the theoretical man is the value of truth; he seeks to identify every manifestation and to reduce it to a general law; he dissolves art into æsthetics; man is to him not an object of love but only an object of study; in politics, which for him are of little interest like all the realities of life, he is a radical, because he wishes to realise his principles, and he acts always according to these principles. The artistic man does not identify and does not study, but he endeavours to apprehend the single case in all its peculiarity. Science is foreign to him; his religion is a religion of beauty, he loves not politics, he asks for liberty in order to be able to develop all his powers. The social man is the man of love; he loves others, and the motivation of his doing is love; science and arts and economical life are indifferent to him; politics also; but in general he is a religious personality. The religious man, lastly, is he who refers all single values to the total value of life. Of the other values, love is the nearest to him. In his acts he is influenced by the highest value, by his religious faith.

Without any doubt, these types are simplifications and idealisations of life. But it is wholly impossible to give a picture of the variety of forms occurring in life; all that science can do is to reduce this variety to a number of simple forms. If these are complete it must be possible to reduce all forms occurring in life to terms of them. If we meet a man whose manner of seeing life and the world we are not able to reduce to one or several of the directions of value mentioned above, we are incapable of comprehending him; only if we succeed in ranging him somewhere in our scheme can we understand him. The possibility of so doing has its deepest root in the identical structure of mind at all times and in all places.

This is, therefore, the new methodological principle of

investigating personality: to search for the structure of the mind and to reduce it to one of the types. The biographical method itself will receive new impulses from this quarter, and we may say also that the psychographical method now becomes important only in so far as it contributes new material on particular points. Without doubt experimental psychology must have a hearing if there are questions which it is capable of solving. The relations of mind to physical life must be investigated, but all these investigations become important only if the general structure is already known.

To the descriptions given above the objection might be raised that we do not encounter these types in actual life. We have to emphasize the fact that we describe simplified and idealized types; our types are admittedly constructions, but these constructions are made by observing life; they try to lay down some simple principles about reality, to think of individuality as absolutely perfected not in an ethical sense but in so far as all dispositions, sleeping within it, are developed to their highest degree. We must insist that it is quite impossible to describe the variety of real forms in a scientific way; science must generalize, it must simplify, it must construct: the form of generalisation in the "Geisteswissenschaften" is other than in the natural sciences: the "Geisteswissenschaften" search for the structure of mind or of cultural phenomena; their form of generalisation is the description of types. But we must add that the structure given in man is only one of the conditions determining his appearance in life. Whatever the structure, the "Lebensform" developes, and how it developes depends on the influences of life. But we must emphasize the fact that the determining form of life is situated in man himself. It must be insisted that, starting from this hypothesis and the methodological principle here sketched, pædogogics acquire quite another aspect, but to attempt to prove this in detail would be beyond the scope of this paper.

FOREIGN INTELLIGENCE.

[*We are glad to be able to announce that we have made arrangements whereby regular instalments of notes from foreign sources will be contributed by competent authorities abroad. These will include comments on the progress of psychology in the countries concerned, together with abstracts of such periodicals and books of importance as are not readily accessible to English readers. The latter will be found in our "Survey of Current Literature." We publish a further instalment of General Foreign Intelligence below, and propose, in the near future, to extend our arrangements to cover all centres of psychological importance.*]

UNITED STATES OF AMERICA.

Meetings.—The meeting of the American Psychological Association, which took place in Cambridge the last week in December, was attended by about 200 psychologists from all parts of the United States and Canada. Among the interesting features of this gathering were the symposium on Applied Psychology participated in by Profs. Thorndike, Yoakum and Mayo (the last-named an Australian guest of the Association), the address on the foundations of social psychology by Prof. Dunlap, the retiring president of the Association, and the address by Prof. Bott, retiring vice-president of Section K of the Association for the advancement of Science, who spoke on the presuppositions of scientific rescearch. With the exception of one of the sessions, which was held at the Boston Psychopathic Hospitals, the *locale* of the meetings was Emerson Hall, Harvard University.

The main business items that were brought to the attention of the members were the raising of the annual dues from two to five dollars a year, the programme of the Psychological Corporation, and the certification of consulting psychologists. The next meeting of the American Psychological Association is to take place in Madison, Wisconsin.

Publications.—Since the last report there have been no specifically psychological works published. C. Brigham's *A Study of American Intelligence* really comes under the rubric of mental testing, while *Modern Color*, by C. G. Cutter and S. C. Pepper, is perhaps more applied to experimental aesthetics than to psychology.

The subject that is receiving most attention, perhaps too much, at present in American psychological periodicals is that of instinct, no fewer than a score of articles having been written within the last few months on the question whether the concept of instinct must be given up in psychology.

A committee, consisting of Prof. Taylor, head of the Harvard University neurological department; Prof. McDougall, head of the Harvard psychological department; Prof. MacFie Campbell, Director of the Boston Psychopathic Hospital; Prof. Langfeld, co-director of the Harvard Psychological Laboratory; and Dr. Roback, who is acting as secretary of the publication committee, has undertaken the publication of a volume to commemorate the seventieth birthday of Dr. Morton Prince, the pioneer in American psychopathology. The volume will contain contributions by eminent neurologists, psychologists and psychopathologists in the United States and abroad.

Prof. Titchener is still at work on his voluminous Systematic Psychology, the publication of which is eagerly awaited by many of his colleagues.

In Pittsburgh a plan has been adopted to examine candidates for scholarships by means of mental tests of an advanced nature. One of the leading members of the committee in charge of this work is Prof. Roswell H. Johnson.

The Princeton Psychological Laboratory which was hitherto occupying the third floor of Nassau Hall, the oldest structure of the University, is to be transferred to a new building which is now under construction, thanks to the generosity of Mr. R. N. Eno, research associate in Princeton University, who donated $100,000 toward that purpose. An anonymous donor has made an additional gift of $25,000.

Laboratories.—The following investigations are being carried on in the psychological laboratory of the University of Pennysylvania, directed by Prof. Lightner Witmer, with the assistance of Professors E. B. Twitmyer and S. W. Fernberger:— c

Dr. S. W. Fernberger: Analysis of arterial expansion by a new plethysmographic method. H. S. Oberly: Differentiation of range of attention and range of apprehension by the method of constant stimuli. Dr. K. G. Miller: The psychological college entrance examinations as a means of prognosis of success in college work. Dr. R. E. Leaming: Tests and Norms for vocational guidance at the 15 year level. C. Easby: Tests and Norms for the 6 year level. A. M. Jones: A Study of superior competency: What constitutes it and what is the relative frequency of its occurrence. Dr. A. S. Starr: A study and standardisation of the audito-verbal digit memory span. Dr. R. Brotemarkle: An analysis of the factors operative in the digit memory span. Dr. S. W. Fernberger: Norms of performance of the Maxfield Design Blocks. M. S. Peters: Standardisation of the Witmer Formboard for age. Mr. G. Kessler: Standardisation of the Witmer Cylinders for age. L. M. Hubbard: Standardisation of the Young Maze Test "C" for adults. M. G. Goldstein: Standardisation of Young Maze Test "A" on Negro children. W. V. Stewart: A study of decadent whites in the West Virginia Mountains. H. J. Link: Tests for fitness to acquire stenographic training. A. M. Jones: Standardisation of the Dearborn Formboard "1 C" by age. A S. Clark: Group memory span for digits in the Junior High School. D. K. Hallowell: The psychological status of psychopathic children. H. Hutt: Intensive individual psychological examination of non-conforming school children. Dr. R. E. Leaming and C. Easby: Psychological tests on Irish-American children to determine possible nationality differences.

ITALY.

The third International Conference of Psycho-technology as applied to professional orientation was held in Milan on October 2nd-7th, 1922, under the patronage of the Humanitarian Society; it was organised on somewhat original lines in that it took the form of conversations and discussions without any of the usual long papers. Among other matters were discussed the international standardisation of tests, the psychology of labour, the doctrines of Taylor and vocational orientation, and the first traces of vocation. The inauguration was made by Prof. Patrizi, who claimed that Psycho-technology originated in Italy through the ergographic studies of Mosso and the work of Romazzini on the pathology of labour.

The following memoirs were warmly and profitably discussed: Lahy—" What is meant by professional aptitudes "; Lipmann—" The psychological analysis of labour "; Bauer—" Professional orientation and Taylorism "; the author and the majority of the members of the Conference appeared contrary to the doctrines of Taylor. Myers also took part in this discussion and suggested the creation of an International Committee for unifying tests. Patrizi presented a series of associative and vocational diagrams obtained by a new method. Corberi spoke about innate and acquired professional aptitudes, and Baumgarten about professional inclinations.

The members of the Congress visited many institutions of psychological interest in Milan, and were particularly interested in the Professional School at Modena directed by Prof. Pizzoli, which has a labroatory of vocational psychology and professional orientation containing instruments and apparatus invented twenty years ago by Pizzoli, which only now are being successively rediscovered in Berlin and elsewhere.

FRANCE.

The name of Coué, which has been known for years in America, in Switzerland and in England, came but lately in France to the light of public fame. The celebrity of Emile Coué, French psychotherapeutist, and of the " New School of Nancy," dates in France from his travels in America, last year, during which he enjoyed a great success. M. Henri Pieron, director of the Laboratory of Physiological Psychology at the Corbonne, Paris, devotes an important study to the man and his methods in the *Revue de France*, 1st Jan., 1923. In this article we learn that Coué had attended in 1885-86 the lectures and experiments of Dr. Liébault, the founder of the first School of Nancy, the father of the doctrine of suggestion, and the teacher of the celebrated Dr. Bernheim. Coué is not a Doctor, and is more of a practitioner than of a theorist. He does not appeal to mystic powers, nor does he pretend to possess in himself a mysterious and supernatural healing faculty. On the contrary, he addresses those who come daily to him, in his little house of Nancy, with the following speech: " I never cured anybody; I have only taught many people to cure themselves. The experiments that I shall propose to you will always be successful, even if they fail. For I never claimed that my thought would realise itself in you; on the contrary, I have always said that it is each one's own thought which realises itself in each one. If, therefore, when I ask

you to think: 'I can no more open my fingers,' you think on the contrary, 'I can,' it will infallibly happen that indeed you will be able to open your fingers. You will believe you have put me in the wrong; you will on the contrary have decided in favour of the principle of auto-suggestion." M. Coué has related his method in a booklet entitled: *De la suggestion et de ses applications* (Barbier, Nancy). The first experiment is the following: the subject crosses his hands and presses his fingers until a sligh trembling appears. (As long as the exercise will last, the practitioner must not life his eyes from those of the subject. He tells him that he cannot loosen his fingers; that he will reckon until three, and that at the order of "three!" he must try to separate his hands while thinking "I cannot." If he really think "I cannot," it will be indeed impossible for him to loosen his hands. After a few seconds the practitioner will tell him: "Now think "I can," and his fingers will in fact immediately loosen.

When this experiment has been successful—which may be after several attempts—the other ones are equally successful. Certain people are very sensitive, and this can be recognized by the fact that contraction of their fingers and limbs is easily obtained. Coué lays stress on the fact that it is not *suggestion* properly so called which determines the phenomen, but the *auto-suggestion* consequent upon the suggestion by the practitioner.

After the success of the first experiment, Coué bids the bystanders to close their eyes and utter with a deep, monotonous, authoritative voice, several suggestions which are available for everybody and affirm the good working of all their organs. He adds for those suffering from a determinate disease: "If one of your organs does not work now in a normal way, this anomaly is disappearing a little every day, so that it will soon have completely disappeared. Moreover, should exist any lesions in one of them, these lesions are healing from day to day and will be quickly cured."

It is not necessary, says Coué, to know which organ is sick in order to heal it. Under the influence of the auto-suggestion "*the sick organ must be cured*," the inconscious does its work on this organ, which it knows how to discover.

Are the methods of Coué so original as to deserve the name of *New* School of Nancy? M. Piéron thinks that Coué's proceedings show nothing essentially original, that he is the direct follower of Liébault, who in turn has been inspired by the usual methods of former healers. The fact that Liébault made use of full sleep, while Coué's subjects fall only in a state of mental torpor, a kind of half sleep, is not a great difference, for Liébault himself never held that hypnotic sleep was at all necessary to psychotherapeutics. From a practical point of view, Coué does no more than develop proceedings founded on the mutual action of individuals upon each other in a trusting crowd, proceedings as old as mystic therapeutics themselves, but the success of which depends on the great fame of the therapeutist.

On the doctrinal side, Coué does not appeal to any external divinity; he seeks to convince every patient that in himself only he will find the strength necessary to his recovery. But Mrs. Eddy, the founder of *Christian Science*, had already said: "The mind commands the body, not partially but wholly"; and she adds that "this conviction is the most efficient medium of medical practice."

On the theoretical side Coué has only developed the teaching of his master on the rôle of the Unconscious, the mechanism of auto-suggestion, and collective influence in therapeutic sittings.

What is the practical value of such psychotherapeutics? asks now M. Piéron. This value was already known as regards neuropathic accidents: in which cases suggestion undoes what suggestion has done. Such accidents frequently occurred during the war: *e.g.*, a shell-shocked soldier becomes dumb as a consequence of his great emotion. Why? So long as his mind remains under the effect of the emotive shock, the accident which it caused subsists *because*—and as long as—he believes himself incapable of overcoming it. But in actual fact, a few hours or a few days after the shock, he has really perfectly recovered the power of speech—though he firmly believes the contrary. Internal impressions gave rise to the inhibiting conditional reflex (the word " auto-suggestion " precisely means this internal origin of the impressions which created the link of association). In order to bring back the normal mechanism, the inhibiting mechanism must be checked, and this is the object of suggestive therapeutics.

But the School of Nancy claims in addition to cure organic diseases. It is doubtful, thinks M. Piéron, that the related cures are all true, if one notes the frequent lack of a diagnosis previous to, and of a medical verification subsequent to, the " cure." What is unquestionable is the satisfaction of the patients, who feel relieved or believe themselves cured—even when this is not true objectively. The fact that suggestion, denying the evil, may lead to actions conformable to this accepted belief is, for such diseases as are nearly painless, quite possible. Coué benefits indeed most of his clients whatever their disease may be. But this fact must not be presented as absolutely new, for the surprising results which psycho-therapeutics can attain have been known long since, *e.g.*, what wonderful results can be produced in the treatment of tuberculosis, by the use of a remedy perfectly inefficient by itself, but the application of which has been preceded by a suggestive and hopeful advertisement.

Dr. Pierre Janet explains this moral influence which may aggravate or improve the state of a patient, which influences the great thaumaturgists have at their disposal by connecting it with the theory of the curative effects of " excitation." The affective life and the life of the organism are closely dependant upon each other: everybody knows the various physiological effects of the emotions. When moderate and tonic, emotion may have a valuable exciting influence, stimulating the heart beat, increasing anabolism, stimulating secretions, destroying the organic poisons, etc.

The cures achieved by M. Coué throw new light upon the truth, often forgotten, of the close relation between organic and the mental life. Direct action of suggestion, by the mechanism of the conditional reflex, upon neuropathic accidents, general action of an emotional excitation upon the resistance of the organism and its ability to struggle against diseases: this is the key of the success of thaumaturgy.

SURVEY OF CURRENT LITERATURE

Juvenile Delinquency. By H. H. Goddard. London: Kegan Paul, Trench, Trubner and Co., Ltd.)

In 1912 a survey was made of the mentality of all delinquent cases received by the industrial schools in the State of Ohio; over 50 per cent. were declared to be mentally deficient. To meet the situation just disclosed, the Ohio Bureau of Juvenile Research was established two years later. In 1917 the Legislature appropriated $100,000 for buildings, laboratory equipment, and staff. And in the following year Dr. Goddard—so well-known for his scientific work with defectives at Vineland—was appointed Director. Dr. Goddard's little book, now published, describes the history, the organisation, and the actual working of the new Bureau; and summarises the more important results and conclusions to be looked for from its future activities.

During the past two years nearly 4,000 cases have been examined individually, and over 10,000 by the group method. Of the former between 30 and 40 per cent. have been found to be "feeble-minded" and between 20 and 30 per cent. "psychopathic"—the two chief types of mental subnormality distinguished by Dr. Goddard among delinquent cases. English writers will probably feel that these are somewhat high. They will surmise that the writer has included under "feeble-minded" many who we should consider merely dull or backward, and under "psychopathic" many whom we should consider merely "unstable," thus seeming rather to exaggerate the proportion of extreme or pathological defect to be discovered among the delinquent groups as compared with the law-abiding. Nevertheless, his broad recommendations remain unshaken; and it is instructive to find him now emphasising the importance of "temperamental deficiency," as well as of "mental deficiency" in the narrower sense. It is of especial interest to observe that he has independently developed a view already formulated in the pages of this *Journal*,[1] concluding that "it is outbursts of the old instincts, which are supposed to be controlled, that lead to delinquency."

In his final chapters he points out that, in the possibility of preventing delinquency in its earliest stage, lies the school's opportunity; and that the first step in the problem is to view the delinquent "no longer as a child to be punished, but as one to be treated and trained," as one to be "first studied and then socialised."

Cyril Burt.

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[1] *The Causes and Treatment of Juvenile Delinquency.* Vol. II, pp. 343 *et seq.*

Occultism and Modern Science. By T. K. Oesterreich. (Methuen, 6/-.)

Professor Oesterreich is well known as one of the sanest students of Psychical Research on the Continent, and in this work he deals with the more important types of phenomena mainly by descriptions of characteristic cases such as Helene Smith, Mrs. Piper and Eusapia Palladino. The book is intended as an introduction to the subject for the benefit of the German public, and to this purpose it appears to be well-adapted, but it contains little or nothing in the way of new facts or conclusions calculated to add to the knowledge of existing students.

It is interesting, however, to note that the author accepts Telepathy unreservedly, and believes that it can be made to account for even the most complex evidential matters such as the more elaborate forms of " cross-correspondence." A considerable chapter is devoted to Theosophy, and in particular to the variety of the cult preached by Steiner, who receives a greater share of attention than his influence upon contemporary thought would appear to justify.

The translation has been well done, but the text is disfigured by an unnecessary number of verbal and typographical errors.

The Omnipotent Self. By Paul Bousfield, M.R.C.S., L.R.C.P. (Kegan Paul, 5/-.)

Dr. Bousfield's earlier book on *The Elements of Practical Psycho-Analysis* received somewhat stringent criticism at the hands of the stricter Freudian sect. It is unlikely that the present work will please these critics any better, for it shows a certain independence of view which is not always acceptable to the orthodox schools.

In general the book consists of a popular study of "Narcissism" undertaken with a view to assisting the reader to perform elementary self-analyses for his own general good. It is a little difficult to see just where common selfishness leaves off and the more recondite Narcissism begins, and one rather suspects that it may be just at the point where auto-analysis—i.e., introspection—breaks down and extraneous aid becomes essential. But it is at least possible that the more euphonious name may act as an incentive to self examination, and that this account of the roundabout ways in which selfishness is often camouflaged may do something to help the ingenuous towards the altruistic life.

Medical Psychology and Psychical Research. By T. W. Mitchell, M.D. (Methuen, 7/6.)

This book, by the distinguished President of the Society for Psychical Research, consists for the most part of papers already published in the *Proceedings* of the Society, to which, however, a considerable amount of new matter has been added. Dr. Mitchell, who is Editor of the *British Journal of Medical Psychology*, possesses an unsurpassed knowledge of the whole field of psycho-pathology, and his writings are always characterised by a breadth of view and maturity of judgment which less experienced or more specialised writers fail to achieve.

He here deals mainly with cases of Multiple Personality and the problems arising therefrom, though the first and longest chapter is concerned with the appreciation of time by somnambules. In the course of Chapters III and IV the classical cases of Multiple Personality are described and analysed, and reasons are given for allocating them to certain categories which are illustrated diagrammatically by two plates. Chapter V contains a very valuable digest of the Doris Fischer case, which will appeal to those who have not the courage or the opportunity to read the original account which occupied the whole of three large volumes of the *Proceedings* of the American Society for Psychical Research. This case, one of the most remarkable on record, was considered by Dr. Hyslop to afford unmistakable indications of the agency of discarnate spirits; but Dr. Hyslop held that the existence of spirits was already proven, an attitude which Dr. Mitchell rightly hesitates to adopt. His analysis of this case is therefore the more valuable since it has primarily been discussed mainly by those who either share Dr. Hyslop's view or else are ignorant of the psycho-pathology of dissociated states of mind.

The last chapter consists of a courageous and interesting attempt to deal with the problem of the unity of the self and the relation between mind and body in the light of dissociation.

Conditions of Nervous Anxiety and their Treatment. By W. STEKEL. (Kegan Paul, 25/-)

Dr. Stekel's book is unlikely to enjoy as wide a public as his earlier volumes of popular essays, but it is correspondingly more important. It consists mainly of a collection of "clinical pictures" of the various anxiety neuroses and phobias which the author has encountered in the course of general practice. He claims, very justly we think, that it is this origin which endows the work with its chief value; for a specialist in nervous disorders cannot hope to realise how many apparently everyday maladies are really of psychic origin, since he only encounters cases which have already been diagnosed as "nervous."

Dr. Stekel finds himself compelled to differ considerably from the views of Freud in many respects, and his position is somewhat reminiscent of that of Adler inasmuch as both were among Freud's earlier pupils and both afterwards diverged from the line of thought followed by their teachers. Stekel differs from Freud mainly in holding that *all* neuroses are psychic diseases, that is to say, by refusing to differentiate between "actual neurosis" and "psychoneurosis." In addition to the influence of sex tendencies he rightly recognises the importance of "ambition, religious feelings, and the instinct of self-preservation." It is true that many of us would claim that the first of these is only a variant on the last, and that the second is largely a matter of sublimation from sexual life, but it is good to find a writer of Dr. Stekel's standing claiming with emphasis that "without a thorough knowledge of *all* the factors at the basis of a neurosis no one can understand it." This is a great truth and one applicable not only to neuroses but to all mental states whatsoever: if and when it is universally realised by the various schools the psychological millennium will be at hand.

Equally apposite is the epigrammatic statement in the chapter on The General Psychology of Fear that "Fear is the will to Immortality." The view of fear as an anxiety state due to sexual instincts has been much overrated in the past and, after all, what is the propagation of the species but a vicarious immortality aptly covered by the form of the epigram?

Dr. Stekel shows, in fact, a grasp of general psychology which is all too rare among the experiments of psycho-analytic doctrines, and it is to be hoped that his work will do something to mitigate the conditions which are so common at the present time.

Revelations of a Spirit Medium. Edited by HARRY PRICE and ERIC J. DINGWALL. (Kegan Paul, 7/6.)

This book consists of a facsimile reproduction of the original 1891 edition, copies of which are extremely rare. To this are added notes, bibliography, glossary and index by the editors. The result is a very valuable addition to the accessible literature of Psychical Research, and should be particularly useful to those who have occasion to investigate the so-called "physical" phenomena.

Its publication has aroused an amount of hostile criticism in Spiritualistic circles, which is really surprising in view of the number of intelligent people who are now interested in the subject. It might have been expected that those who believe in the genuineness of *some* mediumistic phenomena would be the most anxious to differentiate them from fraudulent imitations and the first to welcome any well-informed account of how deception is practised; for it is only by detailed knowledge of this kind that rigid criteria can be applied and real "test conditions" devised. This, however, appears not to be the case, and it is to be feared that the book will enjoy a wider vogue among those who are already knowledgable than among the uninstructed, to whom it would be of the greater benefit.

The Glands Regulating Personality. By LOUIS BERMAN, M.D. (Macmillan, 18/-).

Why do individuals differ, and what divides them into so-called types? In his volume on *Psychologieal Types* recently published in English, Jung has given a persuasive and definite answer. The "extravert" and the "introvert" are there terminologically immortalised; but, valuable as the labours of the psycho-analyst have been, the physiologist, thinks Dr. Berman, has come recently upon data which will render a good many of the Freudian, and herewith he would include Jungian, dicta obsolete. "The future belongs to the physiologist" (p. 21)—such in brief is his challenge to all psychology, of whatever kind.

Nor does he stop there. No statesman, no reformer can hope by present methods to alleviate our lot on earth. Formula after formula is proposed whereby the New Jerusalem may be built; but in vain:—

> "Unfortunately, the formula in human society possesses an Achilles heel. Again it is slavery. Where slavery has become bred into the bone, the standard of the normal becomes reduced so tremendously that the average of normals,

the majority, are hopelessly inferior. In effect, they are really subnormal. So the ideal of our ideal statesman is bound to be defeated, because of the inadequacy of his material.

"No matter how interested in his main business: the promotion of freedom for creative activities in a democracy of the normals, he is bound to be beaten by the majority, consisting of subnormals. There is nothing left for him but to cater to the minority of careerists, the one-eighth of the electorate representing superior intelligence. The intelligence tests employed in the war showed that, and also that 45 per cent. of the examined, or about one-half the total population, had a mental capacity, or natural ability, that would never develop beyond the stage normal to a twelve-year-old child. They are doomed to remain for ever subnormal."

There is one possible hope: we must learn the Chemistry of the Soul, and discover how to control and improve our internal secretions. To assist us in the task Dr. Berman provides an exhilarating account of the discovery of the various glands, of the glands themselves and their alleged functions, and of their influence both on body and on mind. To serious research workers in this debated field, the confidence with which Dr. Berman proceeds must inevitably prove annoying, as indeed he more than once admits; but for the general reader his method justifies itself in attracting attention to really important and interesting questions.

In particular his treatment of historical individuals, such as Napoleon, Oscar Wilde and Darwin, is most instructive, and it is little realised that the life of the author of *The Origin of Species* was a record of continuous illness, which "increased progressively after his return to England (from the voyage on the Beagle). So much so that he was forced to leave London altogether, so as to avoid the strain of social life, even that of meeting his scientific friends or attending scientific society meetings fatiguing him to exhaustion. After such occasions there would be attacks of violent shivering, with vomiting and giddiness. It was necessary for him to impose upon himself an absolute regime of daily routine. Any interference with it upset him completely, and made it impossible for him to do any work. Early morning was the only time for physical as well as mental exertion. Evening found him thoroughly used up, with every move an effort. Insomnia made him its prey. A curious sensitiveness to heat and cold distressed him. In 1859, when *The Origin of Species* appeared, he wrote to a friend that his health had quite failed, and that indigestion, headaches, with a looming hopeless breakdown of body and mind had made his life a burden and a curse. The twenty years of research he devoted to the problems of evolution were one long torture. For sixteen more years, during which he worked upon and produced immortal classics of biology, he was the most wretched and unhappy sufferer from neurasthenia. His life was a continuous alternation of small doses of work and large doses of rest. So he was enabled to publish twenty-three volumes of original writing and fifty-one scientific papers. Living a sort of quasi-sanitarium life, with the rules and regulations of one undergoing a rest cure for thirty-six years, he thus accomplished infinitely more than the millions who have led

the strenuous life. That he thus survived, as a genius, among the perils of an intellectual nature in an environment for which his adrenals sentenced him to destruction, must be put down in large measure to the ministrations and good sense of wife and children who supplied him with the endocrine energy he lacked."

Darwin, it appears, was a martyr to the "inadequate function of his adrenal glands. . . . What saved him was his congenitally superior pituitary (the nidus of genius) and the overacting thyroid." Yet, unlike most scientists of one idea, Dr. Berman leaves it open whether such abnormal people should be "cured." Nietzsche, he says, "might have been relieved of his headaches, Cæsar of his epilepsy. . . . Oscar Wilde possibly might have been made over into a heterosexual" (p. 253), ". . . but how much abnormality are we to tolerate? . . . Destroy or modify the roots, change the seed, and the buds will bloom, if at all, not orchids, but dull brown commonplaces." All he will say is that a new science is here developed, and its twelve postulates or principles are as follows:—

1. The life of every individual, in every stage, is dominated largely by his glands of internal secretion. That is, they, as a complex internal messenger and director system, control organ and function, conduct and character. The orderliness of human life depends, to a large extent, upon their interactions with each other and with the environment.

2. One or several of the glands possesses a controlling or superior influence above that of the others in the physiology of the individual, and so becomes the central gland of his life, dominant both in its every-day existence and incidents, as well as in its high points, the climaxes and emergencies.

3. These glandular preponderances are at the basis of personality, creating genius and dullard, weakling and giant, Cavalier and Puritan. All human traits may be analysed in terms of them, because they are expressions of them.

4. Specific types of personality may be directly associated with particular glandular prominences, so that we have the thyroid-centred types, the pituitary-centred types, the adrenal-centred types, etc. These are the Big Three; the prototypes most easily described and recognised.

5. Combinations of these, as well as of other glands—with joint predominance—occur, and indeed form the majority of populations. The phenomena of varieties in species are thus explained.

6. Internal secretion traits are inherited, and variations in heredity are essentially the structural representation of the resultant of a parallelogram of forces exerted by each of the parental prepotent glands. If they are of the same type, they may reinforce each other: if not, inhibitions and compensations will come into play. Mendelian laws may apply.

7. The process of evolution, as the play of natural selection upon these variations, becomes comprehensible from a new standpoint.

8. Certain diseases, and disease tendencies, both acute and constitutional, as well as traits of temperament and character, and predetermined reactions to certain recurring situations in life, are rooted in the glandular soils that compose the stuff of the individual.

9. The subconscious, of which the vegetative apparatus is the physical basis, leads back to the internal secretions for the profoundest springs of its secrets. We shall see how and why.

10. Given the internal secretory composition, so to speak, of an individual—his endocrine formula—and so his intravisceral pressures, one may predict, within limits, his physical and psychic make-up, the general lines of his life, diseases, tastes, idiosyncracies, and habits.

11. Within limits, if the previous history of an individual is known, his physical appearance may be approximately described, and his future outlined.

12. Conversely, given the physical and psychic composition of an individual, and his past history, one may deduce the internal secretion type to which he belongs.

Yet in spite of all this dogma, amusing, informative, or wildly speculative, odd metaphysical uncertainties occasionally reveal themselves. "The declaration that man is dominated by certain glands within his body should not be taken to give aid and comfort to those who would banish mind from the universe." Mind, it is true, is not spelt with a capital M; but whatever he means by the term it should not be beyond the power of so interesing a writer to tell us more about the "mystic personal purpose" in the equation which "your most rigid nomenclature will never abolish."

Philosophical Studies. By G. E. Moore. (Kegan Paul, 15/-.)

The Misuse of Mind. By Karin Stephen. (Kegan Paul, 6/6.)

It would have been hard to find two more suitable volumes than those of the Editor of *Mind* and Mrs. Stephen to inaugurate the "International Library of Psychology, Philosophy, and Scientific Method," which is under the general editorship of Mr. C. K. Ogden, of Magdalene College, Cambridge. A long list of further contributions is announced, and the Library promises soon to be the most important of its kind in the English language. Apparently there is to be no criterion in selection beyond that of the intrinsic merit of the works; and certainly no two books could be more in contrast than those of Dr. Moore and the enthusiastic disciple of Bergson here offered to us.

Dr. Moore's studies here collected contain everything he has hitherto published with the exception of *Principia Ethica* and the little summary thereof in the Home University Library. Most of the essays, though logical and metaphysical in approach, trench on psychology at some point, whether they deal with "The Refutation of Idealism" (for which its author was long celebrated, though he now regards it as "very confused"), or with "The Conception of Intrinsic Value," and disputes (p. 259) as to whether particular kinds of value are or are not "subjective." There are, as is well known, those who regard Dr. Moore primarily as a grammarian who has missed his vocation; but whatever view be taken of the ultimate validity of his conclusions, their influence on contemporary thought is a profound one.

Mrs. Stephen's work, though less formidable in appearance, is hardly less fundamental in its analyses. This is not the place to discuss the principles of the Bergsonian philosophy in detail. Suffice it to say that in Bergson's opinion his disciple has given an original and personal interpretation of his views; and that in her account of memory and duration she develops a number of original suggestions which will repay close study. "If Bergson's theory of virtual knowledge is correct," she contends (p. 99), "then it does seem as if normally our efforts were directed towards shutting out most of our knowledge rather than towards enjoying it"; and she urges that instead of continuing to "discover repetitions," we shall learn "to know directly the whole of the process of duration which constitutes the individual mental life of each one of us." Clearly Bergson's trouble is in part with our linguistic habits, and it is against his account of the functions of language that criticism, if it is to meet him on essentials, will eventually have to be directed.

PERIODICALS.

FRANCE.

Revue Philosophique, Janv, 1923.—M. Halbwachs: le rêve et les images-souvenirs, Contribution à une théorie sociologque de la mémoire. M. Halbwachs starts from the two following points in order to establish his theory:—1, It is well known that in waking time we do not remember our dreams of the night; 2, A fact which is less known and which the author tries to establish is that, in our dreams, we never remember fully and exactly a scene of our past life, but only fragments of it mixed with unrecognised fragments of other recollections. The instances of dreams quoted by Maury, Freud and Kaplour, in order to disprove this statement, are inexactly related or admit of other interpretations. What those two orders of facts seem to demonstrate is that waking and dream are absolutely heterogenous, and above all that there is no relationship between remembrance and dream. It is even astonishing that, when awakened, we can remember our dreams at all; and indeed, we remember only what we have been able to fix in our minds as soon as we have awakened. The theory (Bergson) which holds that there is an imperceptible transition between dream and waking, and that in recollection one turns off from active life and descends into one's innermost is therefore wrong. On the contrary, the above fact can easily be explained if we bear in mind that the exercise of memory implies an activity both constructive and rational of which we are incapable during sleep. Such activity can work but in an ordered, coherent, *milieu* natural and social. Every recollection is connected with the whole material and moral life of the society to which we belong. If the series of images of our dreams does not include recollections properly so called, it is because remembering demands the power of reasoning, of comparing, of feeling oneself in relation with a human society that can warrant the accuracy of our memory, none of which conditions exist when we are asleep. It is in so far as they have been connected with images having a social significance that we keep some hold on our past states of consciousness and can

rebuild them—at least partially. To remember is not to revive, but to *reconstruct* the past by the help of society. We have a memory because there is an outward society which is in some way the very support of the events with which our personal life is closely connected; our recollections of particular incidents are grounded on the recollections of others, *i.e.*, on the chronological course of social events, while our dreams are supported only by themselves.—Dr. G. Dumas: Préface à un Traité de Psychologie. A Treatise of Psychology in two volumes, written under the direction of Dr. G. Dumas, professor of Experimental Psychology at the Sorbonne, by 25 contributors and representative of the French Modern Psychology, is about to appear. In his Introduction Dr. G. Dumas characterizes the conceptions which his collaborators hold in common and the points where they disagree. A full account of these different views will be given in *Psyche* after the treatise has been published.

Bollettino della Città di Milano. September, 1922. *C. Doniselli*: "Contributions to the problems of school and professional orientation." In this account the author publishes the results of researches made at the Civic Institut of experimental pedagogics and psychology from 1917 to 1921. Of special interest are the experiments on the discriminative capacity for colours, made by a special apparatus (*Chromoaesthesiograph*) which was constructed by the author to replace the method of Holmgren. This apparatus enables the discriminative capacity for colours of different individuals to be registered graphically so that it is possible to obtain in a short time copious material for statistical treatment.

By adapting the mnemometer of Ranschburg the author studies attention and memory in collective experiments, and by using the apparatus in concealment he abolishes the inconveniences formerly associated with it. Very interesting also is the *phonogrammoscope* of Doniselli, by which it is possible to render visible the changes of tonality of the voice, it may prove useful in the education of deaf mutes, because it gives optical indications. But of a yet greater interest are the modern ergographs of the Institut of Milan, which show a notable progress in this important apparatus. In consequence of the inadequacy of the method and imperfection of the instruments, studies in muscular labour and fatigue have had a long period of stagnation, in spite of the important mathematical analysis of the elements of labour made by Treves. The instruments of the Laboratory of Milan are much more complicated than those which were used by the school of Mosso, and permit the operator to register and analyse in a microscopic and stereoscopic view the process of a voluntary movement decomposed into all its elements and factors. These new methods have great importance for psychiatry and neuropathology, because they can demonstrate premonitory disturbances of the neuromuscular system before they can be detected by normal diagnostic means.

Rivista Sperimentale di Freniatria (1922, Nos. III-IV).—*A. Gemelli*: "Psychology and psychiatry and their relation." This long and interesting paper was read by the author at the last meeting of the Italian Freniatric Society. Although acknowledging the utility of bringing into one scientific field the methods of another, the author warns against the danger of introducing anatomical and

biological methods into psychiatry, because the latter is a psychological science not a biological one. The fundamental error of the studies of the last 50 years was the attempt to demonstrate the anatomical, histological or biochemical foundation of mental diseases by a dogmatic and apriaristic procedure. Then, treating the relations between psychiatry and psychology, the author studies the undeniable crisis reached by experimental psychology in Europe and especially in Italy, where it is vigorously attacked by the adepts of the idealistic school. But he finds that his science is now only in a transition period of a search of new methods. The application of the pathological method to psychology is a subsidiary means for isolating individual mental elements and for studying their causal connexion, and it is still valid where the experimental method fails. Only pathologically is it possible to observe an isolated mental function. The pathological method is of a great utility, for it can inform the psychologist about the value of his hypotheses and theories, but we ought not to expect from it excessive results, because it is also unable to advance the solution of philosophic problems. The author makes a rapid historical review of the application of this method of which we mention only the Italian contributions. Buccola was one of the first to apply this method together with Morselli, who is now one of the most authoritative critics of the histological method in psychiatry; he applied to the diseased the method of time reactions in order to obtain diagnostic data. To the same group of investigations belong also those of Mosso, who observed in his researches with the pletismograph and ergograph the influence of different substances and mental states upon elementary psychic processes. With these studies are connected the works by Guicciardi, De-Sarlo and Seppilli. De-Sanctis, on the contrary, has applied psychological methods to the study of frenasthenics, showing the course of elementary mental processes in abnormals. Patrizi illustrated the pathological foundations of certain manifestations of art and commenced the psychological study of delinquents. Del Greco also made notable contributions to the study of various morbid states (superstition, abnormality, deficiency, etc.). But all these researches scarcely had any practical result, because the majority of psychicatrists, in consequence of materialistic preconceptions, still oppose the application of psychology to psychiatry. A great part of the philosophical thought of Italy is also hostile to the experimental psychology, and this fact has produced a notable impoverishment of Italian psychological work. But a great interest in the higher mental manifestations (memory, will, feeling, etc.) still persists, and psychology comes in contact with aesthetics, ethics, pedagogics, etc. De-Sarlo and Villa observed the fact that, while the psychologists aimed at rendering experiments more precise, it was proved on the contrary that no psychological investigation is possible except on the basis of introspect in observation. In brief, psychology seems to turn back to the old method of introspection, or rather to the method of provoked introspection, introduced by Külpe, which produced, according to the author, a true revolution in psychology and is to be largely applied in psychiatry. Only the psychiatrist who knows the laws of thought brought to light by modern psychology through the method of provoked introspection will be able to direct the interrogatory of the diseased in order to discover the minute affections of mental activity.

Rivista di Psicologia. 1922, No. 4. G. C. Ferrari: "Psychology of the Fascist revolution." The author studies in this very interesting paper a phenomenon of collective psychology of the greatest practical importance, *viz.*, the tranquil revolution accomplished in Italy from 27th to 30th October, 1922, which brought to the Government the best youth of the country. It is a systematic valuation of personal impressions made by the author by a method already used by him in analogous studies on persons escaped from the earthquake of Messina and the disaster of Caporetto. The Fascist revolution is the spiritual coronation of the victory of Italy, inasmuch as it marks the defeat of the parties which were opposed to the war. The author studies the deep demoralization produced by the Socialists in the country and on the front during the war, and especially immediately after it, when by demagogic means they initiated a period of violence, in which the country was heading for complete ruin. But the innate scepticism of the Italian people, their distrust of the new leaders in whom they felt the tyrants of to-morrow, and their elementary sense of justice, restrained them from excesses. The Fascist movement has been a reaction of the patriotic mass of combatants, who have found a congenial chief in Bennito Mussolini, the interpreter of the best part of his people, who felt the duty of becoming the defender of the victory against those who injured his native country. Being a deep and intuitive connoisseur of the soul of the masses, he understood how to utilise the experience of the last phase of the war and, above all, the romantic and almost mystic passion of conscious sacrifice for their native land. He demanded absolute discipline and contempt of death, and pointed to the simple ideal of Italy, without promising any recompense. This superior sense of duty gave an almost religious character to this new faith. The close integration of Fascism with the personality of Mussolini is a case of the general reciprocal influence between events and great representative men. It is not difficult to explain the rapidity of the success of the struggle when we take into consideration the different moral qualities of the contestants; on one hand, there were the heroes of the great war, youths animated by the highest ideals, and on the other, a powerful organization moved only by purely egoistic motives, all those who hid under the humanitarian mask their innate cowardice, in brief, the numerous army of the " embusqués." The resolute courage of the Fascists, confronted with the coward quietism of their enemies, was bound to prevail, and very soon did so. E. Vulterini: " The bold Communists and the Fascist squadron of action." This important study in collective psychology made by a high magistrate some time before the Fascist revolution contains much historical and documental material on the struggle of the extreme parties against the Italian state and of the formation of the Fascist groups for the contra-offensive. All the author's statements are fully documented, and therefore this paper is highly important for the study of this very interesting period of the actual history of Italy, and together with the paper by Ferrari give a clear general conception of the moral and politic value of the rival parties. S. De-Sanctis: " Religious psychology." This brief paper is the first chapter of a volume to be published shortly in which the author makes a brief review of the methods and limitations of contemporary religious psychology, and tries to make his own contribution

to the science of religious facts. He studies religious phenomena in their descriptive psychogenetic and physiological aspects, and approximates as regards method to Ribot, Starbuck, Royce and Tames. The field of religious psychology must be the interior experience put in relation with the behaviour of the individual and the religious group. The methods are those of contemporary psychology, analytic as well as synthetic and differential.

Quaderni di Psichiatria. 1922, Nos. I-V. A. Salmon: "On the central origin of emotions." The principal scope of this publication is the explanation of the mechanism by which representations give rise to affective energy. The intellectualistic and the peripheric theories of emotion do not explain the mechanism by which the ideogenetic element provokes the rude dynamic reaction which characterizes this phenomenon. The greatest importance must be attached to the fact that every emotion is accompanied by the awakening of special instinctive tendencies, as was especially indicated by Sergi, Tames and Dewey. According to the author the awakening of the instinctive tendencies is one of the most important psychogenetic elements of emotion, the intermediate element between representation and emotion. The genesis of instincts presents also a notable affinity with that of emotions. The influence of mental factors upon instincts, the loss and aberration of instincts observed in some mental affections connected with grave cortical lesions, bear witness to the cortical seat of instincts. The awakening of instincts is a reaction of cortical motor kinaesthetic images. The kinaesthetic theory explains, according to the author, the relation between instinct and emotion, the emotional movements of hypnotic states, and the genesis of organic emotions. The cortical origin of emotion is also confirmed by the intimate relations between emotivity and imaginative activity. The kinaesthetic reaction represents the origin of the emotional process, while the sentiment or the consciousness of the emotion is the final stage of this process. A. Salmon: "Cortical and subcortical organs of morbid emotivity." In this second paper the author answers certain objections and proves his thesis by clinical facts. The subcortical theories meet a very serious objection in the fact that destructive lesions of these organs do not provoke complete loss of emotivity, but only determine an emotive hyper-reaction. On the contrary, the cortical theory finds its best corroboration in clinical experience, which proves that irritating cortical lesions determine an accentuation of emotiivty, while destructive cortical lesions lead to the abolition of every emotion. The author considers, therefore, that the cortical kinaesthetic centres are the seat of instincts and emotions.